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Expecting to save $20M

Web-based procurement pays off for John Hancock's Vaughn Osmond and Roy Anderson. 35

Singin' the IT blues

Depression hits IT pros hard, but how can you tell? 59

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IT budgets rock boat

BUSINESSES ROB OTHER UNITS TO PAY TECH BILLS

By Barb Cole-Gomolski

SOME ARE CALLING it the bailout of information systems.

Faced with increasingly bloated IS budgets, some companies are being forced to use money once earmarked for other departments to keep IS afloat. "From the chairman on down, people understand that it costs more to get IT people now," said Bill Hickmott, manager of technical professional staffing at Liberty Mutual Systems in Portsmouth, N.H.

At some sites, this diversion of funds is resulting in ill will. One university, for example, is grappling with the fact that software engineers now earn more than associate professors, according to a consultant who has worked with the institution. It is also putting pressure on IS to slash costs, IS managers said.

"IT spending is definitely on a rampage," said Dan Barth, vice president and chief information officer at Pinnacle Brands, Inc., a sports trading-card company in Grand Prairie, Texas. The frenzy of the year 2000 problem has loosened up budgets, and "IT has basically gone to the store with a blank check," he added.

At Longs Drug Stores Corp. in Walnut Creek, Calif., rising IS salaries and a turnover rate that has jumped from 7% two

IT budgets, page 80

Health orgs eye sharing private 'net

By Bob Wallace

A GROUP OF health care organizations is banding together to cut costs, speed transaction processing and simplify data sharing. They hope to meet that goal by moving from an expensive and slow private-line data network to the Internet, *Computerworld* has learned.

The health care group has been holding talks with the Automotive Industry Action Group about using its Internet-based virtual private network.

That VPN, the Automotive Network Exchange, or ANX, was undertaken by the auto industry to uniformly and securely link automakers to their suppliers and trading partners. The

Private 'net, page 81

ANDREW GYGI

Is Freud right for the job?

Surprise! A shrink with a programming certificate might make a good catch. That's because, as people move on to new careers, they can carry with them the aptitudes for success in IT.

Managing, page 49

Web expands Kmart reach

By April Jacobs

ATTENTION, Kmart shoppers! The rebounding discount retailer plans to build an intranet to offer a broader range of products and new services in an effort to boost its sales and customer base.

ELECTRONIC COMMERCE

The project, which so far has cost an estimated $1.92 million over the past 10 months or so, was designed to surmount the space and resource limitations that prevent Kmart Corp. from expanding.

Kmart views this virtual approach as a way to adapt to customer demands quickly (instead of test-marketing items in stores) while giving stores the potential to offer an infinite array of products and services.

Here's the plan: Kmart was set on July 19 to unveil at 48

Web, page 81

Network nirvana promise revived

By Sharon Gaudin and Kim Girard

IF SUN MICROSYSTEMS, INC. can pull it off, the promise of computing anywhere, anytime, without the hassle of configuration, will soon be upon us. And computers could work together to make more computing power available to users as needed.

Sun last week rolled out Java-based software designed to harness wide-ranging computing power and turn a jumble of computers, printers, network cards and operating systems into a seamless network. In this scheme, devices can be plugged in and automatically set up and can be accessed by any other de-

Network nirvana, page 80

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'NET RAGE

KARL BASQUILLETTE/IDG

Angry consumers are taking their grievances to the Web, and they aren't being coy about it. With names like GTE Sucks, The Official Anti-Nike Site and The I Hate McDonald's Page, these rogue Web sites are a public relations disaster for corporate America.

In Depth, page 57

To Improve Any Application, Just Add Unicenter.

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Name the IT job or skill, and the Windy City needs it. Here are the top seven that really cook. **IT Careers, page 63**

File management system lets HoneyBaked staff sell ham, not fix IT. **The Enterprise Network, page 39**

Saab's Loren Morris says the virtual office is becoming a way of life for mobile workers. **Review Center, page 84**

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YEAR 2000

President Clinton calls for legislation to let companies focus on fixes — not lawsuits. **6**

Thanks for noticing the year 2000, President Clinton; now you must get serious about it, Frank Hayes charges. **12**

Year 2000 budgets shouldn't end on Jan. 1, 2000, argues William Ulrich. **27**

International council tracks worldwide year 2000 readiness, promotes testing. **29**

EXECUTIVE Briefing

■John Hancock is expanding its intranet-based procurement system to save as much as $20 million per year by cutting paperwork and getting better deals with suppliers. But such systems require lots of interdepartmental cooperation and technical know-how. Page 35

■Irked users can get vicious on Web sites, vilifying companies such as GTE, McDonald's and Toys R Us, whose products or service disappointed them. If it happens to you, there isn't much you can do; laws limiting Web diatribes are few. Don't overreact, most sites don't hurt their targets much. Page 57

■Sun distributes a Java-based way for all electronic devices to talk to one another, creating networks automatically, letting devices share computing power and providing a standard interface for sharing data among systems. Unlike most other attempts, which go back at least 10 years and have always bombed, Sun's uses standard hardware and lets users pop devices on or off the network at will. Page 1

■A new survey shows that salaries for IS staff are rising fast, between 8% and 11% annually. Many companies say they can't afford the increases, so they're offering perks such as telecommuting and signing bonuses instead of bigger paychecks. Page 1

■Hong Kong's new airport opened publicly and disastrously, as passenger and baggage handling systems were swamped and went down. The vendors responsible blamed insufficient testing and systems that fed errors down the line, and said any new airport has bugs to work out. Page 29

■Merger mania hits U.S. stock markets, as Nasdaq plans to acquire the American and Philadelphia exchanges, and the Chicago Board Options Exchange merges with the Pacific Stock Exchange. Tech-savvy players dominate, but technology has yet to make a fundamental change to trading methods. Page 8

■A mineral company uses order-management software to centralize orders and tailor packaging to make delivery cheaper. That's important when your products sell for pennies a pound and ship by the ton. The company hopes to let each customer have a custom packaging and billing process. Page 43

■A Bulgarian group is offering the programming talent of the people who built much of the Soviet space program, but the month-old firm doesn't have any customers yet. Page 29

■A bank consortium is trying to set up an electronic-check system with the Fed so individual banks won't end up competing with one another over E-check business. Page 35

■Standard product costing methods don't cut it for some companies, so they're trying to get a good estimate while products are being manufactured. Products that do that are beginning to ship, but it's hard to get a realistic handle on such costs in real time. Page 10

BugNet
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IBM hedges its bets on SET

To add second technology for 'net payments

By Sharon Machlis

ONE OF THE major vendors behind the Secure Electronic Transaction (SET) protocol said it will add another, more popular technology to its Internet payment software.

IBM said it will work with CyberCash, Inc. in Reston, Va., to incorporate Secure Sockets Layer (SSL) transactions into its IBM Payment Server, which already handles SET.

Observers said the move by IBM was proof that SET remains slow to take off, with little interest among Internet merchants or consumers. "It sounds like they're hedging their bets a little," said Jim Balderston, an analyst at Zona Research, Inc. in Redwood City, Calif.

IBM officials said their decision wasn't a setback for SET but simply a show of support for a current standard while retaining a migration path to SET. Adding SSL gives IBM "a here-and-now, tried-and-tested payment standard," said Scott Smith, an analyst at Current Analysis, Inc. in Sterling, Va.

NOT A SETBACK

"We do not in any way view it as a setback to SET," said Janet Pruitt, senior vice president of electronic commerce at Visa International Service Association in Foster City, Calif.

Visa, a co-owner with MasterCard International, Inc. of the SET standard, supports the use of SSL encryption until SET, its preferred standard, is in wider use, she said.

SSL provides encryption for the transmission of credit-card numbers on the Internet. SET goes further, using digital certificates to prove the identities of the shopper and merchant. That proof means the credit-card companies will pay merchants even in cases of fraud by consumers, as the credit-card companies do with in-person transactions.

With SSL or other technologies, the merchants must absorb the cost of any fraud.

Under SET, merchants receive only a credit-card authorization, not the actual credit-card number, in theory lessening the potential security threat of card numbers sitting on servers connected to the Internet. (In practice, most major retailers quickly move the numbers to a more secure server.)

Although it offers more security, SET also is more complicated. Merchants must have special software, and each SET purchase requires multiple encrypted transactions.

MOREONLINE

For resource links on SET and SSL, visit *Computerworld online*

www.computerworld.com/more

Comparing standards

SSL

- Simple to deploy and use
- Widely used today
- Strong encryption protects credit-card numbers
- No proof of ID for merchants or consumers

SET

- Authenticates merchants and consumers to reduce fraud
- Cuts risk of credit-card numbers being stolen
- Tough to implement
- Strong encryption protects credit-card numbers
- Not used yet in U.S. markets

Consumers need digital certificates and special "wallet" software to make a SET purchase, instead of just a credit-card number as for SSL.

The wallet in Microsoft Corp.'s Internet Explorer 4.0 browser, for example, supports SET as well as SSL.

"I have no need for SET," said Mike Krupit, vice president of technology and creative services at CDnow, Inc. in Jenkintown, Pa., the leading online music seller. Consumers worried about online shopping are unlikely to understand SET, let alone be enticed to buy because of it, Krupit said.

WAIT AND SEE

Other Internet retailers are awaiting judgment. Macys.com in San Francisco is satisfied with SSL technology but would consider SET if it were easy to use, said President Kent Anderson. "Convenience is a big part of why consumers go to the Internet," he said.

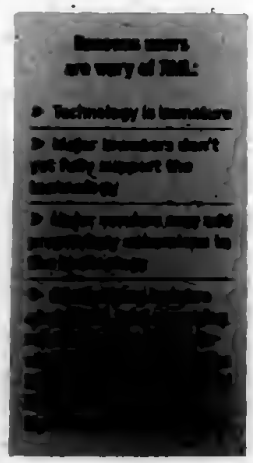
"We are going to adopt whatever becomes the standard," said Clifford Sharples, president and CEO of Garden Escape, Inc. in Austin, Texas. The company is interested in providing the highest level of secure shopping available, he said, but "we're definitely taking more of a passive approach, letting the market figure it out." □

Many users aren't yet ready to jump on XML bandwagon

By Carol Sliwa
CHICAGO

EXTENSIBLE MARKUP LANGUAGE (XML) played to a standing-room-only crowd at Internet World/Summer '98 here last week. But webmasters said XML is still too immature and unavailable to adopt now.

Unlike the ubiquitous Hyper-



text Markup Language (HTML), the object-oriented XML can collect and categorize fields of data so users can better search it on the front end and manage it on the back end.

"It still seems so far away and so what-if," said Alyse Wittenberg, webmaster at the Adler Planetarium & Astrooomy Museum in Chicago.

"It's being advertised as a grown-up language, but it sounds like it's in its infancy," said Rick Turocy, an information services representative at American Greetings Corp. in Cleveland.

"It's not in the browsers. It won't show up on the [Web] pages, so what have you gained? Until that's going to happen, I can't use it," said John Berry, webmaster at Broadcast Electronics, Inc., a radio transmitter and receiver manufacturer in Quincy, Ill.

"I would start thinking about using it when at least half of the people coming to the site can use it," Berry said.

Microsoft Corp. and Netscape Communications Corp. plan to fully support XML in their upcoming 5.0 browsers. But Microsoft has only a developer preview out now, and Netscape's beta version won't be out until year's end.

In the meantime, Xerox Corp. gets around the browser problem by using XML on the server for a Web application that gathers data about parts for its copiers and printers.

Service representatives on the road use Web browsers to find out where they can get parts. They can enter specific part numbers through the browsers, and then the back-end server matches the part numbers to sets of relevant XML data.

If the exact match isn't available, an acceptable replacement can be suggested, even if the information is being drawn from multiple databases.

Having XML on the browser would add speed, said Christopher Noyes, a manager of Internet services at Xerox in Rochester, N.Y.

But XML on the server is a welcome alternative to the more complex Standard Generalized Markup Language Xerox has been using, said David Woodruff, Internet services program manager at Xerox.

Berry said he can see potential uses for XML. For instance, XML might make it easier to update the Web site that Broadcast Electronics' distributors and sales staff use. With XML, he could change pieces of information in an HTML page, rather than having to repost the whole page, he said.

Turocy said he can envision using XML for human resources applications. "A lot of companies use multiple databases with repetitive information," Turocy noted. With XML, they would only need to store that information once.

Despite many users' reluctance to use XML, Michael Maziarka, director of Cap Ventures, Inc., a Norwell, Mass., consultancy, said they should get started down the XML road, given the momentum behind XML and the benefit of being able to use data for multiple purposes over a long period.

Maziarka said converting from HTML to XML is difficult, so users might as well start formatting their data in XML now — otherwise, they'll have lots of work to do later. □

Microsoft floats trial protocol for 'net applications

Microsoft Corp. is floating the Simple Object Access Protocol (SOAP), a trial protocol that could let objects communicate with one another over the Internet.

For example, a client-side object might need to talk to a server-side object if an end user wants to withdraw $100 from an Internet-based bank account.

XML is the message format for both the data and the Remote Procedure Call (RPC), which gives instructions to the server.

Today in the Microsoft environment, objects talk to each other over the network using Distributed Computing Environment/RPC or the Component Object Model (COM) over the HyperText Transfer Protocol, said Vin Gundotra, Microsoft's director of platform marketing.

"Our goal is to provide COM developers the ability to use multiple protocols," Gundotra said. "SOAP is another interesting idea for a protocol." But Microsoft doesn't have an implementation ready or a proposal to submit to a standards body for XML/SOAP, Gundotra said. — Carol Sliwa

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▸ *European vendors cozy up to U.S. customers*

By Craig Stedman

BASEBALL, HOT DOGS, apple pie . . . and SAP?

Both SAP AG and applications rival The Baan Co. are trying to make themselves look less European and more American to U.S.-based users and investors.

And the pace of change is picking up as more and more of each vendor's sales come from these shores. For example, Baan this month named an American to replace company founder Jan Baan as CEO.

SAP also is taking steps ranging from launching American-style user voting on software development priorities to buying its first piece of U.S. land for a new SAP America, Inc. headquarters (see box).

And some users have noticed deeper changes in SAP America's technical support and product planning teams.

"From a decision-making perspective, I think they're still pretty heavily influenced by Germany," said Steve Grossman, manager of SAP implementations at Amoco Corp. in Chicago. "But now we can work with SAP's U.S. people, and they can help us navigate through the German development organization."

That process has become smoother during the past 18 months, Grossman said. And SAP America's support workers "don't have to just refer things back to Germany anymore," he added. "Before, they were just the mouthpiece. Now they can handle things on their own."

"I don't think you can call SAP a German company now," said Jeremy Coote, president of Philadelphia-based SAP America. "There's not a conscious effort here to become American, but there is a conscious effort to become international."

AMERICAN BRANDS

Americanization steps taken by SAP and Baan include:

SAP

- Started enhancements voting process with U.S.-based user group
- Plans to list stock on New York Stock Exchange in August
- Initiated stock-related bonus plan to attract employees in the U.S.

Baan

- Named U.S. native Tom Tinsley as CEO this month
- Moved Tinsley and other corporate executives to U.S.
- Plans to sell off ownership of some resellers

For Baan, the recent changes "are definitely intended to make ourselves easier to understand from an American perspective," said Lorenzo Martinelli, vice president of global strategic marketing. Martinelli is among a half-dozen Baan corporate executives who now plan to spend most of their time in the U.S.

The reasons are obvious: The U.S. is each vendor's largest market. It accounts for about 35% of SAP's revenue, and the U.S. and Canada together make up more than 40% of Baan's business. And the relatively untapped hordes of midsize U.S. companies are a big draw.

But the cozying-up process isn't always smooth. A Wall Street tempest over Baan owning some of its resellers highlighted "the difference between what it's like to do business in the U.S. and what it's like to do business in Europe," said Joshua Greenbaum, an analyst at Hurwitz Group, Inc. in Framingham, Mass.

Baan got the message and sold off a California-based reseller last week.

SAP and Baan have also adopted the U.S. habit of marketing products long before the software is ready, said Byroo Miller, an analyst at Giga Information Group in Cambridge, Mass. "Not only are they picking up some of the good things here, they're also picking up some of the bad," he said.

And that can lead to problems for some users. Lucent Technologies, Inc.'s Power Systems division last month began a crash data warehousing project after software promised by SAP didn't show up on time. "I think SAP is modeling itself after Microsoft now," said Karen Peterson, manager of business process planning at Lucent in Mesquite, Texas. □

HP 3000 gets new lease on life; users get Intel migration support

By Jaikumar Vijayan

LOOKS LIKE there's going to be no gently fading into the night for the HP 3000 just yet.

After a period of declining sales in 1996 and 1997, the mid-range platform is experiencing a renaissance of sorts. Boosted by what Hewlett-Packard Co. described as double-digit revenue growth in the past 18 months, the HP 3000 is being pulled out of "maintenance mode" as HP readies a new strategy to revitalize the 25-year-old server line.

Palo Alto, Calif.-based HP this week will announce plans to help HP 3000 users migrate their applications to Intel Corp.'s IA-64 architecture when it becomes available in mid-2000.

"This is HP saying that the 3000 is here to stay," said Harry Sterling, general manager of the HP 3000 group.

Also, HP next month will announce substantial price cuts on its existing products — including reductions of up to 50% on certain upgrade options.

The HP 3000 strategy "allows us to plan out in the future," said Bill Weber, vice president of technical services at NPD Group, a consumer market research firm in Port Washington, N.Y. The firm has been using HP 3000s to run all its core applications for the past 20 years. Support for IA-64 on the HP 3000 "means we won't be forced to spend money moving to other platforms because we got dead-ended," he said.

HP's move signals an unexpected turn of events for the proprietary platform that many thought would be mothballed years ago in the face of competition from Windows NT and Unix servers.

The current growth phase comes after more than two years of declining sales and dwindling interest in the platform — issues many users blamed on HP's lack of interest.

Support for IA-64 "reflects HP's commitment to the HP 3000 platform, makes it an equal partner with [HP's] Unix systems and provides increased performance for those who need it," said Mary Ellen Woods, manager of application development at Stone Container Corp., a $5 billion paper and packaging producer in Chicago with 55 HP 3000s.

Still, some crucial short-term issues remain to be resolved for HP 3000 users, such as getting developers to port applications in areas such as finance and manufacturing to the platform and providing support for new peripherals, users and analysts said.

With an installed base estimated at between 60,000 and 70,000 systems worldwide, much of the HP 3000's continuing appeal — particularly among small and medium-size businesses — stems from its reputation for rock-solid stability and its low-cost, low-hassle maintenance.

ADDED SUPPORT

Since moving to its current PA-RISC based processor architecture in 1987, HP has made it a point to base HP 3000 hardware on the same processors and components as its HP 9000 Unix servers.

HP 3000 Internet and interoperability road map:

1998

- Netscape Server
- Java support
- Domain name server
- Enhanced FTP

1999

- Java performance tuning
- Java database connectivity support

2000

- More network sockets
- 1G bit LAN links

In the past two years, HP has also worked on trying to improve the interoperability of the HP 3000 in heterogeneous environments by supporting features such as 100Base-T networking links, TCP/IP connections and Java support.

Efforts such as these are leading to a resurgence of user interest in the platform, said Rich Postmus, manager of wide-area networks at Knight-Ridder, Inc., a Miami-based media company that runs 40 HP 3000s. □

Corrections

An article in the June 29 Corporate Strategies section ("Stock options afflict mergers"), cited an incorrect location for Corporate Management Solutions, Inc. It is in Shelton, Conn.

A June 1 Review Center feature ("Clash on the Internet") contained performance numbers that were subsequently discovered to be distorted by an undetected server hardware flaw. A laboratory test showed the results for Lotus Domino Mail in processing 4,800 messages should be 6 minutes, 56 seconds, and in distributing 1,000 messages should have read 7 minutes, 25 seconds. These times are dramatically lower than the initial test scores. While the article's conclusion, that E-mail products with roots in the Internet may be faster and less expensive than groupware products, is valid, the performance differences are less significant than they originally appeared.

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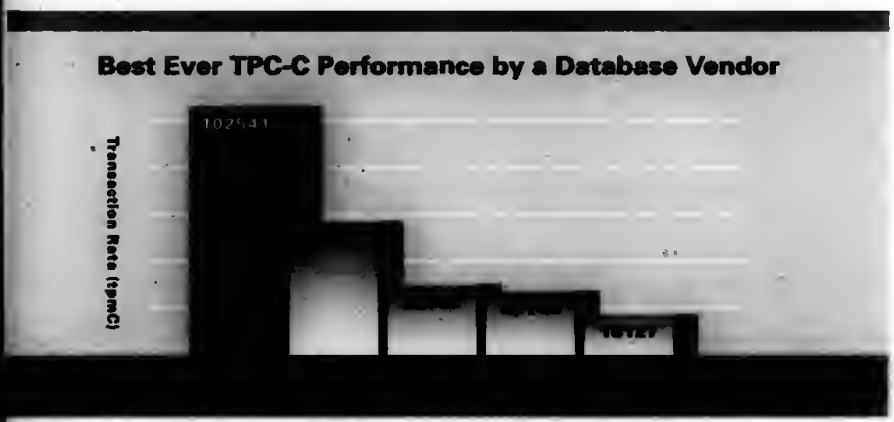

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(A) available Sept. 15, 1998, (B) available Aug. 13, 1998, (C) available Oct. 29, 1997, (D) available Aug. 29, 1997, (E) available Dec. 26, 1998

Exchange mergers tech-driven

▸ *Teaming with larger, tech-savvy exchanges*

By Thomas Hoffman and Sharon Machlis

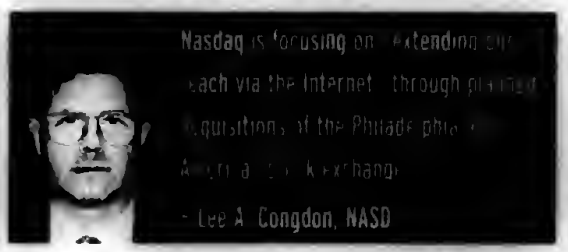
FINANCIAL EXPERTS said investment banks are driving recent alliances among U.S. stock exchanges in an effort to lower costs and improve efficiencies through information technology.

"Technology is going to pass by a lot of these exchanges if they don't get going" to upgrade their systems, said Gary Hagstrom, the head of institutional equity trading at Stephens, Inc., a Little Rock, Ark.-based investment bank. Merging and sharing IT resources are potential ways to accomplish that, Hagstrom said.

But the extent to which stock exchanges will tap those partnerships to change their trading operations by using new World Wide Web and other technologies remains to be seen.

Last week, the Chicago Board Options Exchange said it had begun discussions with the Pacific Stock Exchange in San Francisco about "potential strategic alliances."

The Chicago Board-Pacific Exchange announcement follows a move in March by the National Association of Securities Dealers, Inc. (NASD), which operates the Nasdaq Stock Market, Inc., to merge with the American Stock Exchange (Amex) and to acquire the Philadelphia Stock Exchange. Observers said the deals could foreshadow future announcements as smaller exchanges seek to band together to attract more business.



Hal McIntyre, managing partner at The Summit Group, a New York-based financial services consultancy, said technology usually is central to discussions among stock exchanges.

"It's [often] a situation where a larger, more technologically proficient exchange is rescuing an exchange with declining market share and inadequate technology," McIntyre said.

For example, under its merger agreement with Amex, NASD has committed to spend $110 million on IT at the options exchange during the next few years, said Lee A. Congdon, a senior vice president at NASD in Washington. Those costs may include construction of a new trading floor or refurbishment of the existing Amex trading floor in New York.

Nasdaq already is handling a small portion of its members' trades via the Internet, said president Alfred Berkeley.

Nasdaq plans to use Internet and middleware technologies from Tibco, Inc. in Palo Alto, Calif., to integrate its stock trading data with the Philadelphia and American exchanges.

"We can deliver varying classes of services depending on the type of public network connection [member firms] elect" to use in the future, Congdon said. Nasdaq is working closely with the two exchanges to develop IT plans and "understand which pieces of the technology fit where," he said.

Bruce Weber, an associate professor at New York University's Stern School of Business, said those and other exchanges are being pressured by powerful member brokerage firms to cut costs and improve efficiencies through the use of IT.

With today's global markets, Weber said, it doesn't make sense for big brokerages such as Salomon Smith Barney to pay membership fees at eight national exchanges in 20 international markets when it can get more bang for its buck belonging to a smaller number of bigger exchanges.

Still, Weber said the costs and efficiencies that could be wrung from Internet trade processing "isn't a big motive for these mergers" because of reliability and security concerns. □

How brokerages comply with orders to screen and store E-mail. Page 39

Clinton: Limit year 2000 liability

By Matt Hamblen
WASHINGTON

YEAR 2000 project managers, trade groups and attorneys last week praised President Clinton's speech calling for "Good Samaritan" legislation so a company can't be held liable for sharing information on the computer glitch.

Users and vendors are worried that they will be sued for saying their software is 2000-compliant when it isn't, perhaps because of an undetected flaw, attorneys said.

Lawyers representing user and vendor firms said the legislation would help companies spread advice about year 2000 problems and fixes. So far, most company statements have been scrubbed clean of meaningful year 2000 information because the authors are worried about lawsuits, they said.

"Have I seen the scrubbed statements? Yes, there are many out there. Have I written them? Yes," said Chicago attorney Mark Kaufmann. "Practically speaking, Clinton is trying to say to companies not to focus on insulating yourself, but to focus on fixing the problem."

LAWSUITS FILED

John Cooney, an attorney at the Venable law firm in Washington, said lawsuits have already been filed over company statements — even comments by salespeople. In one example before an Ohio court, a software vendor's motto, "Software you'll never outgrow," has become the basis of a year 2000 lawsuit.

Based on drafts Cooney saw last week, the proposed legislation would make company statements about the year 2000 inadmissable in court unless the statements are in a contract.

White House officials said the legislation won't prevent lawsuits for actual year 2000 failures and won't protect statements that are intentionally false or delivered with "reckless disregard" for the truth.

Clinton urged support for the legislation last week at his first address on year 2000 problems at the National Academy of Sciences, where he was joined by Vice President Al Gore.

"The proposed Good Samaritan law will give companies the confidence they need to ensure that they keep their customers informed," Clinton said.

"If ordinary citizens believe they're being told the full story, they'll be far less likely to act in ways that could themselves hurt the economy," Clinton added.

The president was referring to concerns that year 2000 hysteria could lead to runs on banks or investments funds.

Some congressional leaders said the Good Samaritan proposal could pass the House of Representatives before the August recess, but others said a battle could delay debate until year's end, when passage might be too late to do much good.

Sen. Robert Bennett (R-Utah) praised Clinton's speech but said the bill may suffer attacks from lawyers' groups who for years have lobbied against legal limits in product liability cases.

John Pasqua, vice president of year 2000 at AT&T Corp. in Basking Ridge, N.J., said Clinton's plan and the speech were "very positive. . . . Any initiative to raise awareness helps." □

Columnist Frank Hayes addresses the president. Page 12

President Clinton, in an address at the National Academy of Sciences, said, "The proposed Good Samaritan law will give companies the confidence they need to ensure that they keep their customers informed"

SIA detects 'minor' Y2K test glitches

In its first set of year 2000 "streetwide" tests on Wall Street last week, members of the Securities Industry Association (SIA) discovered a set of "minor" connectivity problems among a handful of brokerages, clearinghouses and stock exchanges that participated, according to an SIA spokeswoman.

The glitches weren't date-related but instead involved interfaces among computers at various firms, said the spokeswoman, who said the discoveries were based on "very preliminary results."

The New York-based industry association (www.sia.com) simulated stock trading between brokerages such as PaineWebber, Inc. and other participants for Dec. 29, 1999, and the three-day settlement process that would carry those trades over into 2000.

A set of SIA members is scheduled to perform additional tests today and Wednesday to simulate the 2000 date change.

The SIA plans to release aggregate results of the tests Aug. 10. — Thomas Hoffman

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Users look for help on production costs

By Craig Stedman

FOR SOME MANUFACTURERS, setting standard production costs once a year doesn't provide an accurate enough accounting of what they actually spend to make a product. And new software is emerging to help them clear up the confusion.

But several prospective users last week said the technology itself may not be the biggest bite they will have to chew. The more problematic piece can be preparing workers for big changes in the way they look at a basic business measurement such as product cost.

"It takes a different mind set in your operating unit, and that's the most difficult part," said Del Ghia, controller at a Toledo, Ohio-based division of Dana Corp. that makes power units for trucks.

Dana's drivetrain service unit wants to figure out how machine downtime and emergency orders impact the standard production costs it calculates annually. But activity-based costing, a form of accounting that tries to quantify the true cost of each part of a business process, was too complex, Ghia said.

Instead, Dana next month will start testing software from Maxager Technology, Inc. that Ghia said looks like a simpler alternative to activity-based costing. Even so, the software will run in pilot mode for six months "before we decide whether it's beneficial for us," he said.

Increasing manufacturing productivity by just 5% would mean an extra $1 million in profits for Tool Products Co., said Rick Kulla, plant manager at the Minneapolis-based maker of die-cast aluminum. But the difficulty of allocating fixed expenses to individual production processes ruled out activity-based costing. Maxager's software will be tested this week to see if it can be used by shop-floor employees, Kulla said.

PINPOINTING COSTS

Manufacturers expect these benefits from more accurate product costing:

- Increased efficiency
- Better understanding of product profitability
- Improved cash flows and inventory turns
- More useful data for setting prices

Maxager, a start-up in San Rafael, Calif., plans to announce its namesake software this week. The product is supposed to provide real-time feedback on manufacturing throughput to help plant managers uncover bottlenecks and quantify product costs on a per-minute basis.

Meanwhile, application vendors are increasingly embracing activity-based costing. SAP AG added that feature to its market-leading R/3 software last year, and PeopleSoft, Inc. is testing a similar product for shipment early next year.

And by fall, Oracle Corp. plans to detail how activity-based costing technology it bought this spring will be tied to its packaged applications. That also is due early next year, Oracle said.

The need for better cost measurements is widespread, said Jim Holincheck, an analyst at Giga Information Group in Cambridge, Mass. But he said activity-based costing and Maxager's bottleneck-driven approach "are both pretty consulting-intensive." And the price can be steep: Maxager is charging about $100,000 for a pilot installation, followed by annual fees of $125,000 to $250,000.□

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FRANKLY SPEAKING

A bridge to . . .

FRANK HAYES

Dear Mr. President:

At last. Finally, despite the distractions of Newt and Monica and Ken, you've noticed that something besides the next presidential election will happen in the year 2000. I think that's wonderful.

Maybe it was because you heard about recent Senate hearings during which one expert testified that if the Defense Department doesn't have its year 2000 problems fixed, Saddam Hussein will try again to invade Kuwait and Saudi Arabia. Another expert said Asian businesses are more concerned with surviving today's economic collapse than worrying about a problem 18 months away.

Or maybe you woke up one night in a cold sweat with the realization that if the Internal Revenue Service and the Social Security Administration don't get their year 2000 houses in order, you'll be faced with a government shutdown and a lot of really irritated senior citizens.

Whatever the reason, it's great that you're pushing to suspend antitrust laws that make it harder for companies to share millennium-bug fixes that work. The year 2000 job bank is a nice idea too, and funding a series of World Bank conferences on the issue won't hurt.

But none of that is anything close to what's needed.

Mr. President, make the Y2K issue a top-line national priority.

Look, Mr. President, let's get serious. You're facing a year 2000-induced recession that will kick off in January 2000 — just 10 months before the next election.

You can't stop it. You can't talk your way around it or charm your way out of it. Even if most U.S. companies and government agencies get most of their year 2000 problems fixed in time — which isn't likely — glitches and incompatibilities will still slow down business activity.

Throw in the trade lost with other countries that haven't fixed their year 2000 bugs, and you've got yourself some real economic troubles. Limiting year 2000 damage may mean the difference between a brief slowdown and an all-out collapse.

And don't kid yourself, Mr. President. Your high approval ratings depend on the economy continuing to chug along. It's still the economy, stupid. And if it tanks on your watch, you're the one who gets blamed.

So let's get real about this. Sure, companies need to share year 2000 technical solutions. But there's no shortage of year 2000 fixes that work. A bigger problem is making sure each company's year 2000 fix works with other companies' fixes. Legislating some specific antitrust safe harbors for year 2000 testing would help a lot more than just letting companies share ideas.

Then there's the Wall Street problem. Companies are dragging their feet, fighting Securities and Exchange Commission regulations requiring them to detail their year 2000 costs and risks. They're afraid of scaring off investors — but both investors and other businesses need that full disclosure to stay afloat.

The SEC is tightening up the regulations, but we need those new rules now — not in three or six months. You'll see a lot more chaos if the markets find out who's ready and who's not in January 2000 instead of in the next few months.

Maybe most important, you've got to take the year 2000 issue off the political table. Get the Republicans on board — let them take credit, if necessary — and make the year 2000 fix a top-line national priority.

This isn't just a technical issue, or a business issue, or a political issue. It's all those and more. It has all the ramifications of a full-scale war, but so far we're a long way from the kind of consensus a war brings to Washington. The clock is ticking, and last week's watered-down proposals aren't nearly enough.

So do it, Mr. President. Because if you don't act now, come January 2000, Newt and Monica and Ken may be the least of your worries — and ours. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

SHORTS

More funding urged for IT R&D

An advisory committee appointed by President Clinton is expected to release a report this month that says federal research and development funding is inadequate and that if it isn't increased, the U.S. risks "being overcome by nations with a clearer plan and a stronger view of the future," according to a draft obtained by the IDG News Service. The committee advised Clinton to boost federal investment in software, scalable information infrastructures and high-end computing and to create a new agency to manage overall information technology R&D funding.

FBI wants to find cell phones

FBI Director Louis Freeh wants Congress to require telephone companies to provide police with locations of cellular phones, sometimes without a court order. The request last week ignited a firestorm of protest from wireless carriers and civil libertarians worried about unconstitutional invasions of privacy. Freeh, however, wants to have the ability to find criminals who use mobile phones to avoid detection. His proposal is contained in an amendment to a Justice Department appropriations bill.

Sun reports strong earnings

Citing strong Unix server and workstation sales, Sun Microsystems, Inc. last week announced greater-than-expected profits of $288 million on revenue of $2.9 billion for its fiscal fourth quarter. The numbers compare with profits of $237 million on revenue of $2.54 billion during the same period last year. For the full year, Sun's revenue was $9.8 billion, up 14% from the previous year. Profits were $906 million, up 23% over last year.

MCI/WorldCom merger gets OK

MCI Communications Corp. in Washington and WorldCom, Inc. in Jackson, Miss., won clearance last week from the U.S. Department of Justice to complete their merger. MCI also signed an agreement to sell its Internet backbone and wholesale and retail Internet businesses to Cable & Wireless PLC in London for $1.75 billion. Sale of all parts of the Internet business was a condition of the European Commission, which approved the merger two weeks ago. The Federal Communications Commission still must approve the merger.

Novell plans GroupWise gateway

Novell, Inc. next week is slated to announce GroupWise Gateway for Microsoft Corp.'s Exchange. The gateway is a free migration utility that will make it easier for network administrators to transfer individuals or groups from Exchange to GroupWise from a single point of administration, company officials said. The gateway can be downloaded from Novell's Web site (*www.novell.com/download*).

Sybase returns to black

Database vendor Sybase, Inc. turned a $430,000 profit on revenue of $217.8 million for the quarter ended June 30. During the same period a year ago, the Emeryville, Calif.-based company showed a $17.8 million loss on revenue of $215.4 million.

3Com picks ex-Digital exec

3Com Corp. last week named a former Digital Equipment Corp. executive and 25-year industry veteran, Bruce Claflin, to the newly created posts of president and chief operating officer. All four of the Santa Clara, Calif., networking company's business units will report to Claflin, who headed Digital's worldwide sales and marketing operations.

SHORT TAKES Sun is bringing in an accounting firm to audit its efforts in the Java standardization process with the International Standards Organization. . . . Microsoft Corp. reported last week that it had sold more than 1 million Windows 98 licenses since the product's launch June 25. . . . PC maker Micron Electronics Inc. in Boise, Idaho, last week said it will lay off 130 employees, or 5% of its workforce, to lower operating expenses. It also said it has devoted more resources to newly created sales divisions. . . . In a move aimed at adding knowledge management functions to its document management system, Pleasanton, Calif.-based Documentum, Inc. last week acquired San Francisco-based Relevance Technologies, Inc. for $36.5 million in cash and stock. . . . WRQ, Inc. a Seattle-based vendor of host access applications, last week announced @Guard, an Internet software utility that speeds World Wide Web downloads and lets users control what information a Web site can gather about them.

CONTRACT OF THE WEEK

Customer: Equifax, Inc., Atlanta
Prime contractor: IBM
Terms: $900 million, 10 years
Highlights: IBM is extending and expanding its technology outsourcing deal with Equifax to the year 2008. It covers data centers, voice and data networks, disaster recovery and the development of new electronic-commerce offerings for Equifax business units.

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Informix users seek reassurance

By Stewart Deck

ON THE EVE of Informix Corp.'s annual users conference this week in Seattle, users hope to hear concrete plans for continuing the company's resuscitation as well as its plans for a Linux version of its database.

Last summer's meeting had users nervous about the viability of Informix when the company announced its second straight quarter of huge losses.

IIUG's Fred Hubbard: Informix needs to send a strong message about its future

Since then, a new management team has steered the company to two straight profitable quarters.

"There was a lot of uncertainty last year, but [users] must feel somewhat better now just because things have settled down," said Carl Olofson, an analyst at International Data Corp. in Framingham, Mass.

"We've been very, very pleased with their products, but we're concerned about their health, where they're going and what the future holds for them," said George Azrak, national director of information systems development at Domino's Pizza, Inc. in Ann Arbor, Mich. The company uses a 120G-byte Informix database of more than 12 million customer names.

The president of the International Informix Users Group (IIUG) said Informix has to send a strong message from the Seattle gathering that it is alive and kicking.

"The big, big issue is Informix's viability in the future," said Fred Hubbard, director of business development at Irving, Texas-based Virtual Solutions, Inc. and IIUG president.

Carlton Doe, the director of IIUG's advocacy program and a database administrator at Associated Food Stores, Inc. — a billion-dollar grocery cooperative in Salt Lake City — said Informix has made some major improvements in the past year. "The old arrogance and smugness with which they viewed their own users is gone now," he said.

Informix also is planning two product announcements intended to gain user favor. The first, a new version of its development environment fourth-generation language — called Dynamic 4GL — is a response to longtime users who wanted an updated version of the development tool set, Hubbard said.

More intriguing to analysts and users is the company's plan to make its eponymous database available for Linux, the volunteer-supported operating system.

"Linux is a wild card. It has some groundswell [of support] but not the enterprise credibility yet," said Frank Gillett, an analyst at Forrester Research, Inc. in Cambridge, Mass. "But Informix might be thinking that by offering a Linux product early, people will choose them as the preferred Linux database."

"Informix is recognizing that other database vendors aren't paying much attention to Linux," Olofson added.

Even with its financial health and product plans, Olofson said Informix's challenge is basic: "There's a lot of noise in the market that there are only three database vendors left. Informix needs to counter that view and show that they have the technology that will take their customers into the future." □

Platinum extends appeal of management suite

By Patrick Dryden

PLATINUM TECHNOLOGY, INC. expanded the menu of choices for its build-as-you-go management suite at the annual PlatForum user conference last week in Chicago. More integration options for Platinum tools make suites easier to digest, users said.

ADP's Michael O'Keefe linked DBVision and ServerVision to spot problems in company servers

Additions include network monitoring, help desk, database backup/recovery and single sign-on software. By October, 17 Platinum products plus a few vendors' tool kits will be able to exchange alerts and compare events.

That built-in integration capability lets users of separate Platinum products bring them together at any time into a suite called ProVision to streamline client/server maintenance chores.

For example, linking DBVision and ServerVision to yield a common view of databases and systems "immediately pointed out problems in six servers that could have shut down our payroll processing service," said Michael O'Keefe, director of technology at ADP Corp. in Roseland, N.J.

"Platinum has an edge here, because we're familiar with their tools and we can integrate them when we want [and] not get overwhelmed by too many pieces," said Jerry Burgen, systems and database administrator at E and L Transport Co. in Wayne, Mich.

This bottom-up approach can pay off quicker than the top-down approach of implementing a full-scale management structure from Computer Associates International, Inc. or Tivoli Systems, Inc., users and analysts said.

That is why Tivoli strives to keep its framework open, so tools from Platinum and other competitors can plug in with minimal effort. It is also why CA recently unbundled its Unicenter suite, so its tools can tackle one task at a time, then integrate later.

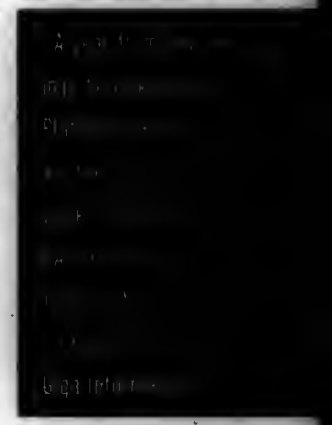
"Platinum has less baggage than CA or Tivoli, so its users can build a workable management suite easier," said Chip Gliedmao, an analyst at Giga Information Group in Cambridge, Mass.

Filling "obvious gaps" in ProVision — including network support and a help desk system — was necessary for Platinum's strategy to succeed, said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Yet Platinum must do a better job of educating customers about integration advantages so they will upgrade their tools to the ProVision version, he said. "Without a clear vision about the payback from integration, they won't want to fiddle with something that already works," Mason said.

But even when Platinum users clearly see ProVision's integration payback, they face the same organizational roadblock that looms whenever information systems specialists must share information.

"We have to integrate the database and operations groups



before we can integrate the DBVision database monitor and the AutoSys job scheduler," said Mike Mueller, a senior systems analyst at Northwestern Mutual Life Insurance Co. in Milwaukee.

Once that happens, night shift operators could watch database processes and kick off scripts to fix problems, he said. "But first, the two groups must get together." □

Vendors support 'private doorbell'

By Laura DiDio

BETTER, BUT STILL NO PANACEA.

That was the reaction of corporate users, privacy advocacy groups and some members of Congress to a vendor-led proposal that would loosen current restrictions on encryption exports.

In the past two weeks, a consortium of 13 high-technology vendors came out in support of a "private doorbell" as a means to end the current stalemate over U.S. businesses' right to export high-level 128- and 256-bit key encryption.

Banker Paul Raines: "I'm against any type of scheme that mandates key recovery"

The federal government has long proposed a controversial key-escrow scheme in which officials would maintain a library of private keys that would let them decrypt information at any time.

The government said it needs the keys because 128- and 256-bit encryption is too hard to break, making the electronic equivalent of wiretapping impossible.

ENCRYPTION ISSUES

Under the consortium's operator-action plan, companies' data would remain private unless law enforcement or government agencies produced a warrant or court order, the vendors said in a joint statement.

Once served, the network operator would access a network control switch that actively filters messages delivered over a private network or the public Internet, the statement said.

"It seems like a good compromise. But I'm against any type of scheme that mandates key recovery even if you do have a doorbell system," said Paul Raines, a vice president of security in the banking industry.

But the private doorbell method, although preferable to the key-escrow approach advocated by the government, "still leaves U.S. businesses at a big disadvantage vis-a-vis international competitors," Raines said, because strong encryption is available overseas from foreign manufacturers.

Ed Gillespie, executive director of Americans for Computer Privacy, a Washington group that favors removing encryption export limitations, was more upbeat. "The private doorbell is a positive step. And it argues for a comprehensive policy solution similar to what's being put forth in legislative proposals like the [Security and Freedom through Encryption Act] and E-privacy acts that are before Congress now," Gillespie said. □

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FTC stops short of spam ban

By Roberta Fusaro

A NEW U.S. Federal Trade Commission report on spam accurately outlines the problems associated with unsolicited commercial E-mail, but it needs to go further toward finding a solution, some users and advocates said.

The report, released last week, suggests several ways to control spam, including cracking down on forged return addresses, developing blocking technologies and creating self-regulatory measures for marketers. But the report stops short of declaring a ban on spam because group leaders said that would violate free speech.

Sang Cho, general counsel at Samsung America, Inc. in Los Angeles, said the company respects freedom of speech issues, "but the FTC also needs to protect the interests of corporations doing business online."

Samsung last August was the victim of spam. A fake advertisement bearing its return address was mass-mailed to users. The return mail from angry users swamped Samsung's network, Cho said, and many customers canceled their orders for electronic products. Even today, the Samsung name is tarnished because "thousands believe [we] conducted unsolicited spamming," she said.

Steve Dougherty, director of Internet operations at Earthlink, Inc., an Internet service provider in Pasadena, Calif., said the company can accept the FTC's "reasonably conservative approach." But spam is a huge problem for Internet providers.

A flood of unsolicited E-mail can put a load on mail servers, Dougherty said, and the companies end up adding costly routers, bandwidth and personnel just to deal with the problem.

Earthlink, which has about 700,000 subscribers nationwide, in April settled a $2 million spam lawsuit against direct marketer CyberPromotions, Inc. for sending unsolicited E-mail to its subscribers. Dougherty said about 5% of the provider's traffic is made up of spam.

John Mozena, a spokesman for the spam-fighting Coalition Against Unsolicited Commercial E-mail (CAUCE), said the report and an accompanying list of the top spam scams (see chart) underscores the need for strong legislation.

At least 10 states are considering spam bills. One of the strongest, Mozena said, is a California bill that would let Internet service providers put a no-trespassing message at their sites.

But CAUCE doesn't think the FTC is the right entity to police spam, Mozena said. "They're having trouble getting the resources to go after Intel and Microsoft. How will they have enough resources to track down an 18-year-old spamming people with pornographic messages from his basement?" he asked.

Spam laws already in place, such as the Junk Mail Law, need to be enforced, he said. □

SPAM SCAMS

The FTC last week released its "Dirty Dozen," the top 12 scams most likely to end up in your E-mail in-box. Here are the top five:

1. **Business opportunities:** They promise a lot of income for a small investment. Some are pyramid schemes.
2. **Bulk E-mail:** You make money by sending your own bulk E-mail. Lists are often of poor quality, and many violate Internet providers' terms of service.
3. **Chain letters:** Every bit as illegal as paper counterparts.
4. **Work-at-home schemes:** You earn money by stuffing envelopes or assembling crafts.
5. **Health and diet scams:** Bogus cure-alls that offer "scientific breakthroughs" or "miraculous cures."

Intel focuses on right to trade secrets

▸ *Disputes FTC's charge it violated law*

By April Jacobs

INTEL CORP.'S RESPONSE to charges that it violated antitrust law appears to rely heavily on the view that it has a right to protect intellectual property regardless of whether it is a monopoly.

Intel's strategy is to dispute the Federal Trade Commission's interpretation of antitrust law and its assertion that the chip maker is a monopoly, said spokesman Chuck Mulloy. The case is set to be heard by an administrative law judge Jan. 12, 1999.

The Santa Clara, Calif., company doesn't dispute that it took back intellectual property, such as microprocessor prototypes, from customers with which it was already involved — or believed it would be — in litigation. The FTC contends that that kind of behavior violates antitrust law, but Mulloy said Intel's position is that none of the actions it took violated any laws.

SOLID FOOTING

"They're on rock-solid ground on the law," said Donn P. Pickett, an antitrust lawyer at McCutchen, Doyle, Brown & Enersen LLP in San Francisco.

"If you invent something, ordinarily you can control it, and Congress has supported this," he said. Overall, the law upholds a company's right to refuse to license or sell proprietary technology, he said.

Intel also maintains it isn't a monopoly. While conceding it has the dominant market share, the company said it doesn't necessarily meet the other two requirements: price control and the ability to put competitors out of business.

Joe Sims, an attorney at Jones, Day, Reavis & Pogue in Washington, agreed that proving the other two criteria won't be easy. "There are other chip makers that will have to be explained away," he said.

And proving Intel controls prices will be difficult because some PC makers have turned to competitors for lower-priced chips at times. □

NT 5.0 work holds up Service Pack 4 update

▸ *Delay is more of an annoyance than a serious problem*

By Sharon Gaudin

MICROSOFT CORP.'S stepped-up effort to get its chronically late Windows NT 5.0 out the door is now delaying updates to the current version.

Service Pack 4 for Windows NT 4.0 is going to be late, following in the footsteps of Beta 2 for NT 5.0.

Jonathan Perera, the lead product manager for Windows NT Server, said software engineers working on the service pack have been called away to an all-hands-on-deck effort to work on NT 5.0, which has been dragging along without an official release date for several years.

The service pack, which is a collection of bug fixes and security enhancements, was scheduled to ship next month, two months after Beta 2 was scheduled to be released.

Now Beta 2 has been pushed back until the end of summer, and the service pack is being pushed back into late fall.

"There are some critical fixes that have been planned for that service pack," said Brian Jaffe, director of network and client services at Bantam Doubleday Dell Publishing in New York. "I won't exactly be left hanging . . . but it's something I'd like to get ahold of."

Perera said the service pack will fix bugs that have cropped up during the past four or five months, including year 2000 compliance problems.

He also said the pack will include two new NT 4.0 enhancements, even though service packs are generally just for fixes and option packs are typically for enhancements.

The pack will include a Security Configuration Editor, which gives administrators the ability to define and set up security configurations across NT workstations and server installations. The pack also will include the World Wide Web-based Enterprise Management Protocol, which will help identify problems in the system and track them across the network.

"The year 2000 stuff in there is clearly important," said Judith Hurwitz, an analyst and president of Hurwitz Group, Inc. in Framingham, Mass. "That date can't be pushed off. I would imagine for people waiting for that, [the delay] is an annoyance, but it's not a life-or-death type of situation." □

Microsoft financials up, legal takes a bite

Microsoft's legal costs have started to show up — as evidenced by its latest earnings report — at the same time political pressure has re-ignited, with the Senate set to hold another hearing this week.

Sales and profits rose for Microsoft's fiscal year 1998. The Redmond, Wash.-based company last week reported $14.5 billion in sales for the year, up 27% from last year's $11.4 billion. Profits rose 29% to $4.5 billion from $3.5 billion.

However, spending related to several lawsuits, including a federal antitrust suit slated for trial Sept. 8, made a dent in the latest quarter. Microsoft spent $128 million on general and administrative expenses — the category where legal costs are allocated — for its fiscal fourth quarter, up 36% from the $94 million spent in the same period last year.

Meanwhile, the Senate Judiciary Committee plans to hold another inquiry into Microsoft's business practices Thursday. The hearing, which follows one in March on Microsoft's browser business, will focus on how Microsoft competes in Internet commerce and in other unnamed software markets.

The CEOs of several software companies were asked to testify, said a spokeswoman for Sen. Orrin Hatch (R-Utah). She declined to say whether Microsoft CEO Bill Gates will be invited. A Microsoft spokesman said Gates hasn't been asked and probably won't participate. Gates did testify last time. — Kim S. Nash

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Web surfing under scrutiny

▸ *Productivity concerns boost filtering profile*

By Sharon Machlis

CORPORATE AMERICA is increasingly concerned about how employees use their Internet connections on company time. So companies are starting to tackle the issue, devising policies for appropriate 'net use and ways to enforce them. But other priorities and limited tools can make the job tough.

At PNC Bank NA in Pittsburgh, for example, all the departments are working together to develop by year's end an Internet access policy that could include monitoring or filtering, said Michael Goddard, assistant vice president of information systems.

Belcan Engineering Group, Inc. in Cincinnati is concerned that some frame-relay connections with limited bandwidth may get choked off because of nonwork-related Internet surfing, said Paul Badowski, senior network specialist.

"It could become a hot point because other people who are working can't do their job," he said. "It's an issue I know we need to address."

LOW PRIORITY

Badowski has already sought information about a filtering product that works with a proxy server or firewall. However, with staffing short and work mounting, other information technology projects have taken priority.

Other companies fear the specter of legal liability if an employee finds images from a pornographic or racist World Wide Web site on a colleague's system and complains about a hostile working environment (see story, right).

Tactics vary for putting the brakes on inappropriate Web surfing. Some companies choose only to monitor usage, figuring that telling employees their actions are being watched will be enough to cut down nonjob-related Internet use.

Other firms are looking to products that block access to some sites. But some of the most popular Internet-blocking software was initially devised for home and school use, with vendors then producing enterprise versions for the corporate market.

"My gut feeling is that these products have scaling problems" once multiple T1 or T3 lines and tens of thousands of URLs per hour are involved, said Bill Gassman, an analyst at Gartner Group, Inc. in Stamford, Conn.

Smaller installations are going more smoothly. In other cases, companies are leaving the filtering to their Internet service provider. BTI Americas, Inc., a nationwide travel firm in Northbrook, Ill., started using a filtering system called Bess at several of its Washington state offices when it was offered by Internet provider Northwest Nexus, Inc. in Bellevue, Wash.

Each desktop browser had to be reconfigured to route through the service, said Steve Mantel, BTI's facilities manager, but since then the service has worked well and is invisible to users. BTI is interested only in blocking offensive sites, Mantel said. "People are going to look at the sports and things no matter what you do. There's no use trying to stop that."

However, ferreting out all the inappropriate Web sites is an enormous task.

An automated search for keywords can screen out useful data, and subscription lists of objectionable sites can be hard-pressed to keep up with the pornography, gambling and racist sites cropping up across the Web. □

Employers: State policies, monitor Internet use

By Sharon Machlis

HOW MUCH TROUBLE can a company get into if employees look at pornographic or racist Web sites on the job?

Whenever that happens, the employer faces a potential lawsuit from offended colleagues, who can accuse the company of fostering a hostile working environment, according to Stuart Smith, a partner at the law firm Gordon & Glickson PC in Chicago.

Dana Hoyt

"It all falls into a 'reasonableness' spectrum," says Alston & Bird's James Jordan III

Legal experts say they don't know of any such cases that have come to trial, but caution the principle is the same as it is for offensive E-mail — and several E-mail-oriented cases have been filed.

And, though not dealing specifically with the issue of digital smut, the U.S. Supreme Court issued two rulings last month that set tough new standards for employer responsibilities when harassment creates a hostile work environment.

At a minimum, companies should have clearly stated policies that prohibit using corporate computer resources for viewing inappropriate material and reserve the right to monitor employees' Internet activities, several attorneys said.

Like most sensitive legal issues, how far a company must go to police such a policy is open to debate.

"At some point, if you have a policy and do a reasonable amount of enforcing the policy," you should be fairly well-protected, said James Jordan III, counsel at Alston & Bird LLP in Atlanta. "It all falls into a 'reasonableness' spectrum."

He said he doesn't think blocking software would be required to prove a genuine enforcement effort. □

MORE ONLINE:

For links on filtering Internet content, visit *Computerworld online*. www.computerworld.com/more

INTERNET MONITORING AND FILTERING PRODUCT SAMPLER

Company	Content Advisor, Inc.	Elron Software, Inc.	Sequel Technology	SurfWatch Software, Inc.	Sterling Strategic Solutions, Inc.	WatchGuard Technologies, Inc.
URL	www.contentadvisor.com	www.elronsoftware.com	www.sequeltech.com	www.surfwatch.com	www.sterlingweb.com	www.watchguard.com
Product	Content Advisor for Firewall-1 NT	Elron Internet Manager	Sequel Net Access Manager	SurfWatch Professional Edition and FireWall-1	SOS Pro	Firebox
Price	$1,800 per year for 250 users	$1,995 for 50 users	Depends on network environment	$995 for 50 users	$4,000-$5,000 for 100 users; $80,000-$100,000 for unlimited users	$3,995 for hardware, $1,495 for real-time monitoring, blocking-and-filtering module
Description	Works with firewall to filter out database based on a list compiled by automated Web crawlers	Blocks sites based on keywords; monitors and generates reports on Internet usage	Offers policy definition and enforcement; filters and logs Internet activity at firewalls, proxies and routers	Works on proxy servers or firewalls for monitoring and filtering. Blocking and reports can be done by site or by category	Filters by sites, group of sites and time of day; can produce activity logs	Security hardware and software suite that includes Web site access controls

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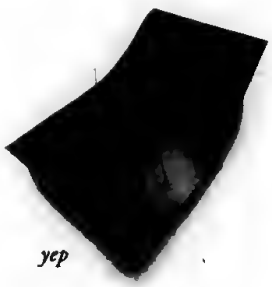

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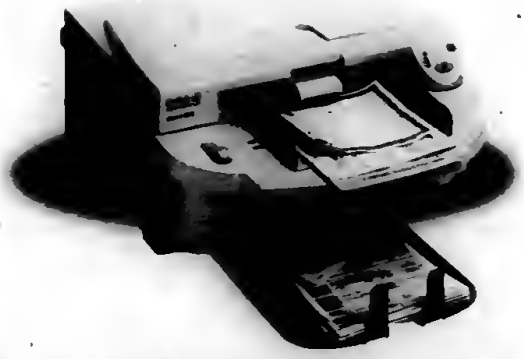

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BUSINESS IMAGING SYSTEMS

Car dealers adapt to the Web

By Bob Wallace

WHEN IT COMES to shopping for cars these days, tire-kickers are morphing into mouse-clickers.

Consumers are turning to the Internet for extensive research — including what car they want, the dealer's cost on certain models and projections of their car loan payments — before setting foot on a showroom floor.

Consider the numbers: 21% of those who bought new cars last year shopped for them online. That figure is projected to almost double by 2000, according to auto research firm J. D. Power and Associates, Inc. in Troy, Mich. The main drivers: Consumers believe they can get accurate car data off the World Wide Web quickly, while avoiding their fear of being taken by a dealer, J. D. Power said.

Allen Weiner, chief analyst covering Web marketing at Dataquest in San Jose, Calif., said the Web can offer comfort to consumers. "Buying a car becomes a far more painless process because things are streamlined. You can go in preapproved to buy, take a test drive and buy what you want without all the hoopla."

FOR BETTER OR WORSE

That is good and bad news for auto dealers, although some claim the benefits outweigh the disadvantages.

"One of the biggest benefits is online preapproval for financing because it gives the customer the ability to purchase when arriving at the dealership," said David Abatsis, general manager of Acton Ford in Acton, Mass. "Then they can use the Ford Web site to calculate monthly payments so they can decide what they can handle."

Those two capabilities make the sales process shorter and more efficient, Abatsis said. "They take a huge barrier away and can let the consumer drive the car away that same day."

On the downside, consumers become preoccupied with price, which means dealers don't always have the opportunity to sell what their dealership has to offer, Abatsis said. "We want to educate the buyer on our parts and service departments, body shop and staff responsiveness to customers," he said.

That is crucial to dealers because new-car sales is the least profitable department, trailing used-car sales, service and parts, analysts and dealers agreed.

MORE MIXED VIEWS

Across town from Abatsis' office, Mike Hills also sees pros and cons to the Internet.

Acton Toyota gets 20% of its monthly business from online dealer referral service Auto-By-Tel, which directs shoppers to member dealerships to buy cars.

"This has allowed us to open up a whole new business entity, which is based entirely on [shoppers] that wouldn't normally come to our dealership," said Hills, general manager of Acton Toyota. "We're getting customers from 30 to 50 miles away that we wouldn't have gotten otherwise." Two members of his staff work full time to handle Auto-By-Tel inquiries and process sales.

But dealers who use online tools to reach beyond their franchise area are a thorny issue.

Nearly half (48%) of 2,900 dealers surveyed last fall by J. D. Power said they strongly or somewhat agree that "dealers should oppose electronic marketing efforts on the 'net as they are a serious threat to the geographic boundaries of the franchise system." Dealers work in a defined market area, said J. D. Power Director Tom Libby. "When that starts to go away, they get very scared."

Hills said he sees one key drawback resulting from consumers' use of the Internet for research.

Because consumers can buy data from online Web sites that reveals what dealers pay for cars, profits aren't as large as they used to be, Hills said. Consumers are no longer negotiating from higher sticker prices. "The knowledge revolution has made things tougher. There's a tremendous squeeze on gross margins," he said. Although such research can be done with *Consumer Reports*, it is easier to go to the Internet and get pricing data that is more frequently updated than in publications.

Whereas 22% of U.S. car buyers pay full sticker price, only 9% of those who obtained information online prior to purchase have paid that much, according to J. D. Power.

Rick Evans isn't sure that the resources on the Internet, including his dealership's Web site, have necessarily made his company's sales efforts more efficient.

Many of the consumers who walk through Evans' showroom door at Huntington Beach Chrysler-Plymouth-Jeep in Huntington Beach, Calif., have far more information than in the past, Evans said. "[But] even if they know more about the products and pricing, we still go through all of it with them."

MARC ALLAIRE

Acton Ford's David Abatsis says the Web helps consumers get OK'd for loans

The importance of having a Web site isn't lost on Evans. "You wouldn't be in business if you didn't have an ad in the Yellow Pages." It's the same situation with the Web, he added. □

Workstations: Stick to what you need

▶ *Customizing systems leads to cost savings*

By April Jacobs

LOOK BOTH WAYS before you leap to buy that Intel-powered Windows NT workstation.

The expanding market for such workstations is an opportunity for former PC users to boost their desktop performance. The systems can support two processors, expanded memory capacity and a variety of power-hungry applications (see chart). But observers said users should make sure they are getting what they need, not what a vendor wants to sell them.

An average personal workstation

- Runs Windows NT
- Has at least 64M bytes of RAM
- Can be dual-processor capable
- Supports workstation applications, such as engineering, animation and financials

Source: International Data Corp., Framingham, Mass.

Users said some of the most common pitfalls can be avoided by carefully perusing features and ordering models to your company's specifications.

John Williams, manager of information systems at Priority Pharmacy, Inc. in San Diego, said users can almost always save money by custom-configuring systems based on what their users need — or even going one step further and assembling the systems themselves.

"If I had to pay for all the extra bells and whistles for 50 people that came with my machine, it would have bothered me a lot," Williams said. "I built a lot of our systems myself and saved the company a fortune."

Most of the confusion in the market now stems from the fact that most of the growth in the workstation market — up 80% from 1996 to 1997 — is made of a new clientele of Windows NT users who work for financial services firms or engineering or animation companies.

Models typically cost about $5,000, which is considerably less than Unix-based boxes, which traditionally sell for about $15,000, said Tom Copeland, an analyst at Framingham, Mass.-based International Data Corp. (IDC).

TRICKY PRICING

But a blurry line divides the prices of so-called workstations and regular PCs. For example, Compaq Computer Corp. unveiled on July 7 its Professional Workstation AP200, an NT-based model designed for computer-aided design and financial applications with a 350-MHz Pentium II processor, 64M bytes of RAM and a graphics accelerator. It is priced at $2,350.

Users can buy high-end PCs that in some cases cost the same as or even a little more than a personal workstation. Dell Computer Corp.'s 610 workstation sells for $3,975, whereas its OptiPlex GX PC lists at $3,977.

Both incorporate Pentium II processors with 100-MHz buses. The 610 model is expandable to two processors.

CUT THE FAT

But buyer beware, observers cautioned, because not all users need dual-processor capability or the ability to expand memory capacity, both of which can add at least $1,000 to a workstation's price. Bells and whistles such as sound and graphics cards also can add several hundred dollars.

Roger Kay, an analyst at IDC, said users can sometimes upgrade higher-end PC systems to suit their performance needs without paying for the workstation's bigger-ticket items, which include support and service for specialized applications.

And users emphasized the need not just to develop corporate standards for desktops, but also to stick to them once they are implemented.

"We have standard configurations for our users that we develop based on what they need, and we try not to deviate from that," said Craig Swain, director of development at Fish & Richardson PC in Boston. □

The growing popularity of Windows NT is making Unix systems more affordable for users. Page 24

New era in mobile connectivity begins today

Xircom

GUI tools dying out

By David Orenstein

THREE RAPIDLY GROWING technologies — Java, Windows NT and the World Wide Web — have rendered older graphical user interface (GUI) tools such as Rogue Wave Software, Inc.'s Zapp Developer's Suite close to irrelevant, developers and other observers said.

Last week, Boulder, Colo.-based Rogue Wave released Version 3.1 of Zapp, the last it will ever develop. Tools such as Zapp found a niche years ago in letting companies develop applications that run on disparate operating systems yet have a common user interface.

"That market is really drying up," said Phil Costa, an analyst at Giga Information Group in Cambridge, Mass. "[Users] may be disappointed, but they won't be surprised."

Windows NT's rapid proliferation as a network operating system has reduced the need to develop outside that dominant environment, Costa said. For those who need to go beyond one platform, Java and the Web offer more popular ways to provide common GUIs.

Doug Reece, developer of StreamNet, a system that displays data about fish for environmental authorities in the Pacific Northwest, stopped using Zapp two years ago. StreamNet now uses a Web browser as its interface, he said.

Rogue Wave is steering itself and its users toward Microsoft Foundation Classes, which are tailored to C++ in a Windows environment. The company recommends Java for customers who need cross-platform applications.

Rogue Wave competitor Neuron Data, Inc. in Mountain View, Calif., also sees more of a future in Java than in its C++ GUI tools, said Paul Vincent, technical director of business development at Neuron Data.

Zinc Software, Inc. in Pleasant Grove, Utah, and Ilog, Inc. in Paris still are active in C++ GUI development, Costa said.

Some users and third-party developers said they are disappointed to see Zapp retired. Dan Dees, a systems analyst at Appsmiths, Inc., a Houston developer of software for oil and gas companies, said his company will still use its own and Rogue Wave's source code. He called Rogue Wave's decision "a shame." □

JULY 27, 1998

Intranets Series

SECURITY: Halt, Hackers!

Corporate networks designed to share and transmit data are inherently insecure. The addition of intranets can make the enterprise even more porous for unwary businesses. And passwords and firewalls are no longer enough; they only serve as a first line of defense. Companies need to start with a good foundation, implementing strong security policies and procedures and making security an intrinsic part of network operations and daily life. Corporate security specialists say the best approach is vigilance.

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SGI, Sun boost workstation power

By Jaikumar Vijayan

THE GROWING popularity of Windows NT is making Unix systems more affordable.

This week, Silicon Graphics, Inc. will cut prices by up to 36% on its midrange Octane desktop workstations and by up to 45% on its high-end Onyx2 servers.

A 225-MHz MIPS R10000-based Octane workstation that costs $19,995 will sell for $17,495 after the cuts. The entry-point for a 225-MHz Onyx2 workstation will remain at $10,495, which is what a 195-MHz system used to cost.

Meanwhile, Sun Microsystems, Inc. will launch a dual-processor workgroup server. The Enterprise 250 system, a new low-end dual-processor box that starts at $9,995, includes several features found on its higher-end boxes, such as remote server management, integrated World Wide Web serving capabilities and rack-mount configurations.

The latest moves come at a trying time for Unix vendors, particularly in the low-end server and workstation space. During the past two years, a growing tide of low-cost Wintel boxes has rapidly eroded their market share.

Aberdeen Group, Inc. in Boston estimates that the installed base of Windows NT workstations will double from 1.1 million last year to 2.2 million in 2000, and that of Unix workstations will shrink from 675,000 to 300,000.

"These are almost certainly defensive moves" against NT, said Tony Iams, an analyst at D. H. Brown Associates, Inc. in Boston. □

QUICK STUDY

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Internet Protocol Version 6

DEFINITION: A set of specifications for the IP Version 4 upgrade. IP Version 6 is being reviewed by the Internet Engineering Task Force (IETF) Standards Committee and also is known as Internet Protocol Next Generation. IPv6 was designed so packets formatted for IPv4 or IPv6 can be handled. Address space limitations and low router performance pushed IPv6 development; a 128-bit address space and simpler IP addresses should alleviate those problems. Other enhancements include built-in 64-bit encryption and autoconfiguration of IP addresses.

IPv6 GLOSSARY

6bone: An IPv6 test bed layered on the IPv4 protocol. It uses tunneling and dual stacking.

Anycast: A type of IPv6 packet. It allows a host to initiate the most efficient update of routing tables for a group of hosts.

Dual stacking: The IETF's "Transition Mechanism for IPv6 Hosts and Routers." It specifies dual stacking as a migration method from IPv4 to IPv6 and supports IPv4 and IPv6 in hosts and routers.

Dynamic Host Control Protocol (DHCP): A strategy for reducing problems associated with the lack of IP addresses. Allows IP addresses to be allocated automatically.

Internet Engineering Task Force (IETF): Supervised by the Internet Society's Internet Architecture Board. It's responsible for developing and deploying Internet Protocols.

IP address (Internet address): Identifies sender and receiver information via packets. To be on the Internet, an organization needs a network address. IPv4 addresses are 32-bit; IPv6 addresses are 128-bit, exponentially raising the possible addresses available.

Multicast: Allows communication between a sender and multiple receivers. In IPv6, it allows receipt of high-bandwidth feeds, such as live video and sound programming.

Network Address Translation (NAT): A strategy for reducing problems associated with the lack of IP addresses. Allows Internet access to nonregistered, private IP addresses.

Urgency of IP upgrade debated

By Laura Hunt

AS THE INTERNET backbone moves to a new standard, called IP Version 6 (IPv6), corporate networks will have to convert to keep pace. But the process will be long and sticky, most observers agree.

The move from IPv4 to IPv6 is inevitable in part because of the short supply of IP addresses. The number of addresses is limited because of the many computers and other devices hooked to the Internet. The new protocol's benefits of simplified deployment of IP devices and enhanced security also will help corporate users.

AT ISSUE

IP conversion comes at a bad time for IT

The largest companies need to start the conversion process the earliest. In fact, a report by Cambridge, Mass.-based Forrester Research, Inc. recommends that companies with more than 1,000 IP addresses begin to plan now. The conversion is especially important for customers who rely on the Internet for enterprise resource planning, electronic data interchange and electronic commerce. Those are the kinds of applications that often require a lot of bandwidth for transaction processing, interactive media, "push" applications and voice-over-IP.

NOW OR LATER?

The big debate is over what exactly should be done and when. Tom Nolle, president of Voorhees, N.J.-based CIMI Corp., says it will be three to five years before corporate wide-area networks need to be converted; others say the conversion requires more immediate attention. And the effort won't be small. As Maribel Lopez, an analyst at Forrester Research, asks, "When have we ever heard of a simple transition?"

Network hardware, software and applications will have to be updated to handle the new, longer address field. Lopez says large IP shops already use Network Address Translation (NAT) and Dynamic Host Control Protocol (DHCP) to solve their problems with assigning new addresses and increasing addressing capabilities. (See glossary for explanations of NAT and DHCP.)

The widespread use of those work-arounds has made the planning for IPv6 conversion seem less critical. "The biggest problem with getting corporations to go to IPv6 is that there are enough patches now to solve the addressing problems. There isn't a 'killer app' that will push them," Lopez says. And network managers have many other large projects staring them in the face, including year 2000 and the euro conversion. "There are certainly much larger problems [than IPv6] that IT needs to address in the next two years," Nolle says.

Helping to get IPv6 up and running is the Internet Engineering Task Force (IETF), which adopted most of the protocol earlier this year. It also has implementation plans and a test environment called the 6bone (see glossary), which resides in Australia and currently links IPv6 devices in 32 countries.

The IETF's challenge is to complete the transition to IPv6 before IPv4 breaks down. The task is huge, and the same problems that plague IT, including the skills crunch, may delay the IETF. The organization plans a phased, evolutionary transition. There will be a period when both protocols coexist on the public Internet. Experts estimate the transition may take four to 10 years. Nolle says it will be 2005 before IPv6 will be pervasive. □

ENHANCEMENTS TO IPv6 FROM IPv4:

Expanded addressing and routing capabilities: The increase of IP address size to 128 bits assures that IPv6 will be the Internet Protocol for a long time to come. There is improved scalability of multicast routing for efficient transmission of high-bandwidth applications, such as video and audio.	**Network performance:** Changes made to the address format help reduce bandwidth requirements and allow more efficient and flexible routing and forwarding.	**Built-in security:** Extensions that support authentication, data integrity and data confidentiality are part of IPv6.	**Ability to assign priority levels to packets:** Packets can be labeled for special handling, such as "priority." A videoconference packet could take priority over a simple E-mail packet.

■ *Are there technologies or issues you would like to learn about in QuickStudy? Send your ideas to QuickStudy editor Stefanie McCann at* **stefanie_mccann@cw.com**

OPINION

Survey stupor

"What keeps you up at night?" were the first words of the survey that landed in my E-mail today. "Not a damn thing, beyond my idiot dogs barking," was my answer. But I just hit the delete key instead.

That's when I knew. I've had it. I have squandered my last surveyable opinion. I have estimated my final tally on the mythical scale of 1 to 5. I have abandoned all estimations of whether I'm very likely, somewhat likely or not at all likely to — what was the question?

There are primitive tribes that believe if you capture a man's image on film, you take his soul hostage. I've come to believe that every time we allow our opinions to be captured by some survey question, another brain cell goes pffttt. ("Would you say your angst over dying brain cells is more than, less than or about the same as this time last year?")

Of course, I really shouldn't whine. Compared with the average IT person, I'm a rank amateur at survey torment. You folks get polled from sunup to sundown by scores of publications, analyst firms, anxious vendors and year 2000 lawyers sharpening their teeth. ("Which body part are you willing to wager that you'll finish on time, almost on time or not at all on time?")

And now that the wonders of technology have given the world automated survey tools, any mouse-wielding yahoo can whip up a graphical, check-box extravaganza of pointless questions. Picture the potential to gather more useless stats once the Internet reaches everywhere. We'll have:

- Surveys in Hell ("On a scale of 1 to 5, with 5 being really toasty, how would you rank the relative heat of our flames?")
- Surveys at the Department of Motor Vehicles ("After how many hours in line do you lose all feeling in your legs?" 1, 3, 5, other)
- Surveys at Comdex ("After how many hours at keynote speeches do you lose all feeling in your butt?" 1, 3, 5, "Hey, I could listen to Bill Gates all night.")

So consider yourselves invited into the ranks of the survey resisters. After reading this, are you more likely, less likely or not at all likely to — oh, never mind.

Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*

LETTERS

Team of vendors built Beetle

I was delighted to see *Computerworld* explore the technology behind the new Beetle ["Beetlemania," CW, June 8]. Because UniKix Technologies was strategically involved in VW Mexico's migration to a state-of-the-art system, it's appropriate to note this large project involved dozens of technology companies and products.

The project was managed carefully by Gedas [North America] to achieve a technology renovation enabling efficient production of what is probably the world's most popular car. Gedas' vision, its selection of the right tools for all aspects of the project and its ability to bring together a unified team of technology vendors set VW Mexico on the road to produce the next generation of cars.

David Matthews
UniKix Technologies
Phoenix
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Competition is the answer

David Moschella's column in the June 1 issue of *Computerworld* ["Now it's time to compete"] was very well done. If Sun, Oracle and IBM won't stop shooting themselves in the feet, they will find Compaq the dominant computer vendor for all-size systems and with Microsoft unable to avoid printing money.

John Hooper
Principal, FutureTech Institute
Nashville
jthoop@mindspring.com

Kids need more than 'net

Don Tapscott ["The kids are alright," CW, June 8] may know all the intricacies of technology, but his ability to evaluate the social condition must be called into question. When children are killing themselves and each other, plus engaging in any number of other destructive lifestyles, we must admit there is a serious problem. If we are abandoning the idiot box, that is reason to rejoice.

But the 'net is not the only thing with which we may fill the void. It's not even the most preferable. Virtue, intellect and athletic prowess can develop quite nicely apart from technological fertilizer.

Ed Haymond
Charlotte, N.C.
haymonde@aol.com

Microsoft: Separate is equal

In its antimonopoly charges, the Justice Department misses the central issue. The key to Microsoft's monopoly is the unopposed integration between its operating systems and its applications. No other software developer can compete with Microsoft products optimized for the operating system built down the hall.

Forcing Microsoft to separate its operating systems business from its applications business will lead to a more level playing field and to more products that better utilize the operating system.

The Justice Department correctly identifies that browsers are part of the future and are part of Microsoft's plans to control the desktop.

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Mac OS X has high value

Galen Gruman's recent column ["A rare moment of lucidity for Apple," CW, June 15] is misleading when it states that the Rhapsody operating system "will be thrown into a black hole." In fact, Mac OS X will contain a variety of key technologies acquired from Next [Software, Inc.]. It will run on a Unix kernel, and one expects that it therefore will have the speed, stability and scalability that enterprise has come to expect from operating systems such as Solaris, Linux and Irix. The value proposition of OS X is that it will run any of the existing 12,000 Mac applications unmodified and that existing apps can be easily tweaked by developers. Many of the confusing user interface issues that were in the original Rhapsody plan will be minimized by OS X. High-end users who don't wish to drool for a year waiting for OS X will be able to buy Rhapsody 1.0 in the fall to tide them over under the current plan. Rhapsody 1.0 is the first and last planned release that runs on both PowerPC and Intel.

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Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Year 2000 budgets shouldn't end in 2000

William Ulrich

I had a chance, while on the speaking circuit this spring, to query more than 1,000 IT and business professionals on how far into the future their year 2000 budgets extend. About 5% said their year 2000 budgets extend beyond the end of the century.

And well over 90% said their year 2000 budgets will dry up when the clock strikes midnight on Dec. 31, 1999.

That revelation underscores one of the greatest myths surrounding the year 2000 problem — that the work ends when the new millennium arrives. Nothing is further from the truth.

The biggest expenditure may be litigation costs, which could exceed $1 trillion.

Why will companies need to ensure that money is available for the year 2000 problem beyond 1999? One reason is that much of the work will remain unfinished at that point. The largest and supposedly best-prepared corporations in America won't come close to achieving year 2000 compliance by December 1999. As of January 1998, the Fortune 250 had, on average, spent 21% of their year 2000 budgets. Four months later, that group had spent 25%. That means year 2000 work within the Fortune 250 is progressing at a rate of 1% per month. Those companies will have spent less than half their year 2000 budgets when New Year's Day 2000 arrives.

Much work will be left undone as we enter the new millennium. Project teams will continue to apply year 2000 fixes to systems that weren't corrected because trying to correct year 2000 bugs in a production environment will translate into major productivity losses for end users. Companies also will need to finish certification testing because latent bugs will likely show up for decades to come. But the ongoing process of fixing and testing systems is only part of post-1999 year 2000 budget requirements.

In 2000, executives will need to deploy crisis management teams to address emergency system fixes, supply-chain failures and data corruption recovery efforts. Crisis management teams will prioritize problems that require business-oriented solutions (such as shutting down failed business units) even as they manage the invocation of contingency plans, provide litigatioo support and manage internal and external communication. Those teams, which must cross a variety of functional and business areas, will need to stay intact for several months if not years.

Special situations directly related to the year 2000 problem will also generate budget requirements. For example, if companies around the world all decide to replace noncompliant PC hardware and software in 1999 — which is unfortunately a direction that the industry is heading — it's unlikely that enough hardware will be available to satisfy the demand. Hardware expenditures are therefore likely to spill over into 2000. A second hangover effect involves the year 2000 cleanup process. Undoing contingency plans, poor coding decisions, object code patches and a host of other temporary solutions will generate additional budgetary requirements. The biggest and most far-reaching expenditure, according to attorneys knowledgeable in these matters, will be litigation costs — projected to exceed $1 trillion.

Not allocating a year 2000 budget beyond 1999 is symptomatic of a larger problem. Many executives believe that year 2000 work will end at midnight on Dec. 31, 1999. For many companies, the real work may just be starting. □

Ulrich is president of Tactical Strategy Group, Inc. and executive vice president of Triaxsys Research LLP. He is co-author of The Year 2000 Software Crisis: Challenge of the Century *and* The Year 2000 Software Crisis: The Continuing Challenge. *His Internet address is tsginc@cruzio.com.*

A brand-new practice called ... time-sharing?

John Gantz

The software industry has come up with a great new old idea. It won't try to shoehorn behemoth enterprisewide applications into smaller containers for small and midsize companies, nor will it try to convince regular customers that usage-based software pricing is in their best interest.

Instead, why not kill two birds with one stone by selling remote access to the application through a business partner?

According to Claire Gillan, vice president of applications software research at International Data Corp., companies already are experimenting with that practice. Systems Union is outsourcing applications in developing countries; J. D. Edwards has launched a network applications solutions business; and SAP has at least one business partner that offers an outsourcing service for R/3. And lots of companies host collaborative software on Internet service provider Web sites.

I've written about this in a column on the impact of the upcoming IT labor shortage (CW, March 2) and later in a column on business outsourcing (CW, May 11). Now, the software vendor angle is represented in the trend.

The concept is nothing new. In the 1970s, we called it time-sharing, and although the value proposition centered on sharing costs of expensive hardware and proprietary databases, much of the value provided was from shared access to proprietary software. Many of the time-sharing firms sold software directly to their big clients to run on their own computers. This trend reverses the process.

The timing is right for this pendulum swing: Corporate America is pretty much fully wired, there aren't enough IT professionals to go around and big enterprise software applications are getting increasingly complex. But I think there were lessons learned by the time-sharing industry that may be learned again as it's reborn under new management.

First, total support costs will probably go up. Software vendors will have to support their access-selling partners, then those partners will have to support their customers. Partner support will be independent of partner volume.

Second, once users have remote access to the applications, they will begin to evaluate in-house alternatives (that's what killed the time-sharing industry). In the economic trade-off of pay-per-use vs. perpetual license, pay-per-use always comes across as more expensive (even if it isn't).

Third, the value of the application may get subsumed by the value of a fast and reliable network, great account management, network technical support and the marketing prowess of the partner. (What happened to AT&T Network Notes and AT&T NetWare Connect Services?)

The timing is right for this retro-swing of the pendulum.

For users, there are plenty of things to worry about. The increased flexibility of renting remote applications trades off against training and integration issues when parts of the company have the stand-alone applications and others have network access. In time, the network access partners will add their own proprietary bells and whistles, which will make evaluation and selection tougher. And the same applications accessed via two different network access providers may act differently. Or differently on two different days.

And because the software industry wasn't designed to sell packaged software that way, users will see lots of channel conflicts up close. It will take software vendors and their network access partners a while to get their sales commission acts together.

But the concept worked great once before. Perhaps it can again. □

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Netscape remakes itself yet again

Dan Gillmor

Is Netscape an electronic-commerce company? Or is it an Internet software company? Or is it a portal company?

Yes. Netscape wants to be all those things. But in its latest exercise in self-definition — with the "Internet economy" as a focus — the Silicon Valley company is trying to create a unifying theme from some fairly disparate notions.

The company practically invented Internet time.

Redefinition isn't new for Netscape, the company that defined the notion of Internet time.

Browsers were never the main business plan, but for a time, Netscape talked bravely that the browser could be a computing platform: Just add Java and plug-ins, and the browser would be your desktop. By supporting many different operating systems, Netscape hoped ubiquity would make the underlying operating system less relevant.

We all know what happened. Microsoft dipped into its bottomless pockets, fashioned its own excellent browser and gave it away. Then it hijacked client-side Java, adding Windows-specific technologies to ruin whatever possibility might exist for cross-platform compatibility. Both matters are in court, but Netscape correctly isn't depending on the legal system for help.

Netscape kept morphing. It kept improving its server products, which sold well. Then it declared itself an intranet company that sells products designed to help enterprises use Internet technologies to improve communications internally as well as externally.

Next, Netscape bought Collabra from Eric Hahn and declared it was also a groupware company that would compete against Lotus Notes, Microsoft Exchange and Novell GroupWise. That had the principal effect of turning Lotus parent IBM, once a firm ally, into at least a partial enemy. Hahn left Netscape a few weeks ago, and the groupware strategy has receded.

Then Netscape announced that the extranet was the wave of the future: using Internet technologies to seamlessly communicate and do business with other enterprises and customers. Throughout this evolution, Netscape kept upgrading its server software and the rest of its enterprise-level product line.

Meanwhile, as browser revenue collapsed, Netscape tried something truly brave: It made public the source code for the Navigator browser, hoping that the open-source-code community would be quicker to add improvements than Netscape could itself.

How that grand experiment will turn out is anyone's guess, but Navigator's market share continues to drop, with Navigator and Microsoft's Internet Explorer at rough parity today in quality and share.

Netscape's latest mantra is the 'net economy, and the company claims that its disparate product lines all fit together nicely. Here's the theory:

Servers and other enterprise software will remain critically important, the building blocks for enterprises that want to participate in the 'net economy. So will NetCenter, the company's stab at the Web portal and business community marketplace, capitalizing on the fact that Netscape has millions of visitors daily to its Web site. (Keeping browser market share becomes more essential for the portal to succeed.) It all adds up to convergence on electronic commerce, Netscape says.

I still don't quite grasp how all the parts fit together, but Netscape has won some major converts to its enterprise and electronic-commerce notions, among them Citibank and Ford. Both have embarked on major projects using Netscape software and services. And NetCenter is attracting some attention — and money — as a major portal.

Watching Netscape is always fascinating, in part because you never can tell what's next. Pauline never had as many perils as this agile but perpetually under-the-gun Internet company. Then again, Pauline didn't have to contend with Microsoft or Internet time, either. □

Gillmor is technology columnist at the San Jose Mercury News. *His Internet address is dgillmor@sjmercury.com.*

Technology and Japan's downward spiral

David Moschella

The resignation of Prime Minister Ryutaro Hashimoto caps yet another round of increasingly loud warnings regarding the sad state of the once-mighty Japanese economy.

As usual, most of the commentary has focused on Japan's bottomless pit of bad loans, a government that vacillates between paralysis and denial, and the long-term prospects for an aging, racially homogeneous, male-dominated society.

Strangely, the most immediate cause of the current malaise — the humbling of Japan's corporate giants — has been almost completely overlooked. Let's face it: Japan's financial, social and political systems were never the envy of the world. It was Japanese companies that inspired awe: Toyota, Sony, NEC, Fujitsu, Toshiba, Mitsubishi, NTT, Matsushita, the Bank of Japan and others. And it's the decline of so many (but not all) of those titans that goes to the real heart of the issue.

The extent of the decline is difficult to overestimate. With the Nikkei stock average still less than half of what it was a decade ago, it's easy to see the late 1980s as a foolish speculative bubble. Certainly, gross excesses did occur. But the real problem wasn't that investors were wrong about the future; what they were wrong about were the prospects for Japanese corporations.

In the late 1980s, it was conventional wisdom that Japanese companies would take over large parts of the computer, communications and semiconductor businesses. Now consider the wealth created during the 1990s by Microsoft, Intel, Cisco, Compaq and so many others. Had this fortune accrued to Japanese companies, the stock valuations of the late 1980s would now seem quite reasonable, even cheap. In that sense, the Nikkei's decline is really just the flip side of the Dow's gain.

So the first question is, why have so many Japanese technology companies lost out in so many major emerging product markets? (Whether they will recover is a topic for another day.)

Yet, as important as that question is, it's the fact that this basic lack of competitiveness extends far beyond the technology sector that accounts for much of today's pervasive economic gloom.

To fully appreciate this, you have to understand that Japan's manufacturing companies are by far its most efficient firms. They are the ones that have been most exposed to global competition and modern management practices. In contrast, Japan's banking, insurance, retail, telecommunications and services sectors have been largely isolated from world-class rivals, allowing legendary levels of bureaucracy, overstaffing and other inefficiencies.

Japan's social and political systems were never envied; it was its companies that inspired awe.

As the Web makes it easier than ever to do global business, this long-standing lack of competitiveness is being exposed. Citibank and Merrill Lynch can provide superior returns to long-suffering Japanese savers. Japanese insurance and pension funds haven't kept up with world standards. Online travel services reveal the absurdity of many Japanese airline and travel prices.

Worse still, technology-driven change is accelerating in the U.S. and elsewhere but is developing very slowly in Japan. For a range of reasons, Japan's use of the Web is still several years behind that of the U.S. — and if anything, the gap appears to be widening.

The world is certainly right to worry about Japan, but we need to understand that technology is a critical part of the problem and, eventually, an indispensable part of the solution. □

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is dmoschella@earthlink.net.*

Corporate Strategies

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Briefs

GENDER GAP

Women are more likely than men to start a business that is unrelated to a previous job, according to a survey of business owners. 56% of female business owners are in a field unrelated to a previous career, compared with 41% of male business owners.

Base: 800 business owners (650 women, 150 men)

Source: National Foundation of Women Business Owners, Silver Spring, Md.

Best Y2K practices

The National Retail Federation in Washington plans to release a year 2000 best practices guide this month titled "Ready or Not — Surviving the Year 2000."

The guide includes recommendations on steps merchants and their vendor partners can take to ensure their systems and services handle the new millennium's dates. The document will be available at www.nrf.com.

Who feels the bill?

Ninety-two percent of software developers say their employers pay for all their programming training courses, according to a survey of 163 people taking programming classes at Corporate U, a training firm in Philadelphia.

Top IT priorities for health care organizations

Recruit and retain high-quality IT staff	17%
Integrate systems in a multivendor environment	15%
Implement a computer-based patient record	12%
Complete year 2000 conversion	11%
Implement clinical decision-support tools	9%
Other	46%

Base: Survey of 1,754 financial, operations and IT executives

Source: Healthcare Information and Management Systems Society, Chicago

Keeping tabs on year 2000 globally

▸ *Clearinghouse will help firms track updates*

By Matt Hamblen

A NEW INTERNATIONAL council and Web site will help multinational companies find gaps in the year 2000 readiness of up to 200 countries and the critical utilities within their borders.

The Joint Year 2000 Council, an international clearinghouse for year 2000 updates, hopes its World Wide Web site (now at *www.bis.org* but soon to change to *http://jy2kcouncil.org*) will prod foreign voice and data carriers and power companies, among others, into action, said the council's chairman, Ernest Petrikis.

If a critical voice and data carrier or a power supplier in a foreign country hasn't posted information on the site, a company should assume the utility may have some year 2000 problems and plan to work around them, Petrikis said.

LOOKING ABROAD

Petrikis, a first vice president at the Federal Reserve Bank of New York, announced the council's intentions July 6 at a U.S. Senate Committee field hearing [CW, July 13] that addressed how failures abroad will affect the U.S. economy.

Much of the year 2000 attention by the U.S. Federal Reserve banks and other financial institutions has been focused on voice and data networks because some banks rely on data circuits for up to 80% of their transactions, bankers and analysts said. One connec-

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Country: Bulgaria
Population: 8,290,988
Literacy rate: 98%
Economy: Formerly part of the Soviet bloc, Bulgaria is one of the poorest countries in southeastern Europe. Slow advancement on economic reforms resulted in a banking system crisis in 1996.

Source: CIA 1997 World Factbook

Bulgarian outsourcer courts U.S. market

By Barb Cole-Gomolski

WHEN MOST PEOPLE think of outsourcing software development overseas, they think India, the Philippines, maybe Ireland. But Bulgaria? A newly formed software company with offices in New York and Sofia, Bulgaria, hopes so.

Rila Software Corp. is initially marketing itself to global companies that need to fix year 2000 bugs and adjust to the euro.

Pricewise, Rila will be on par with outsourcing firms in India, according to Rila CEO Christopher Hansen. But Rila will be closer to its U.S. and European clients in time zones and miles than its competition in places such as India and the Philippines. The real benefit to U.S. companies, however, will be the ability to tap in to Bulgaria's rich programming talent pool, Hansen said.

In the communist era, Hansen said, Bulgaria was the Soviet Silicon Valley. Most of the hardware and software used in the Soviet space program was built in Bulgaria, which has a population of about 8.3 million and is about the size of Tennessee.

TECH-SAVVY WORKERS

These days, the space program has been scaled back and relocated to Russia. That left about 7,000 computer programmers, engineers and other technically savvy people in Bulgaria looking for work, according to Hansen. Many of these software specialists have been working on mainframe-based systems for more than 20 years, Hansen said. Also, because of their background in the space program, they have a wide assortment of skills — including three-dimensional animation — that allow them to offer a wide range of software development services.

Rila has the backing of well-known philanthropic investor George Soros, who put about $3 million into the venture. And

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Vendors take blame for system woes

▸ *Hong Kong airport off to turbulent start*

By Megan Scott
HONG KONG

THE NUMEROUS computer-related mishaps that followed the pomp of the grand opening of Hong Kong's new Chek Lap Kok (CLK) International Airport earlier this month were the result of insufficient planning and systems that were pushed to the breaking point, according to the vendors that supplied the systems.

Problems reportedly linked to faulty informatioo technology systems included arriving planes that were stranded oo the tarmac with no directions to parking gates; passengers missing flighta because of problems with the Flight Information Display System; baggage lost and delayed when baggage handling systems crashed; and problems with baggage reconciliation that led to at least one flight taking off loaded with baggage belonging to passengers who hadn't boarded the plane.

Lost and delayed baggage was one of the glitches that plagued passengers at Chek Lap Kok International Airport

In addition to the problems with passenger operations, half of the public telephones in the terminal building were out of order, and most of the Mass Transit Railway Corp.'s automatic ticket machines malfunctioned during the launch.

The Airport Authority has been slow to release details about the computer problems. But representatives from the suppliers of two major systems indicated that the biggest problem at the airport was a system overload.

The flight information system installed by Electronic Data Systems Corp. did have some problems, according to Jay Davis,

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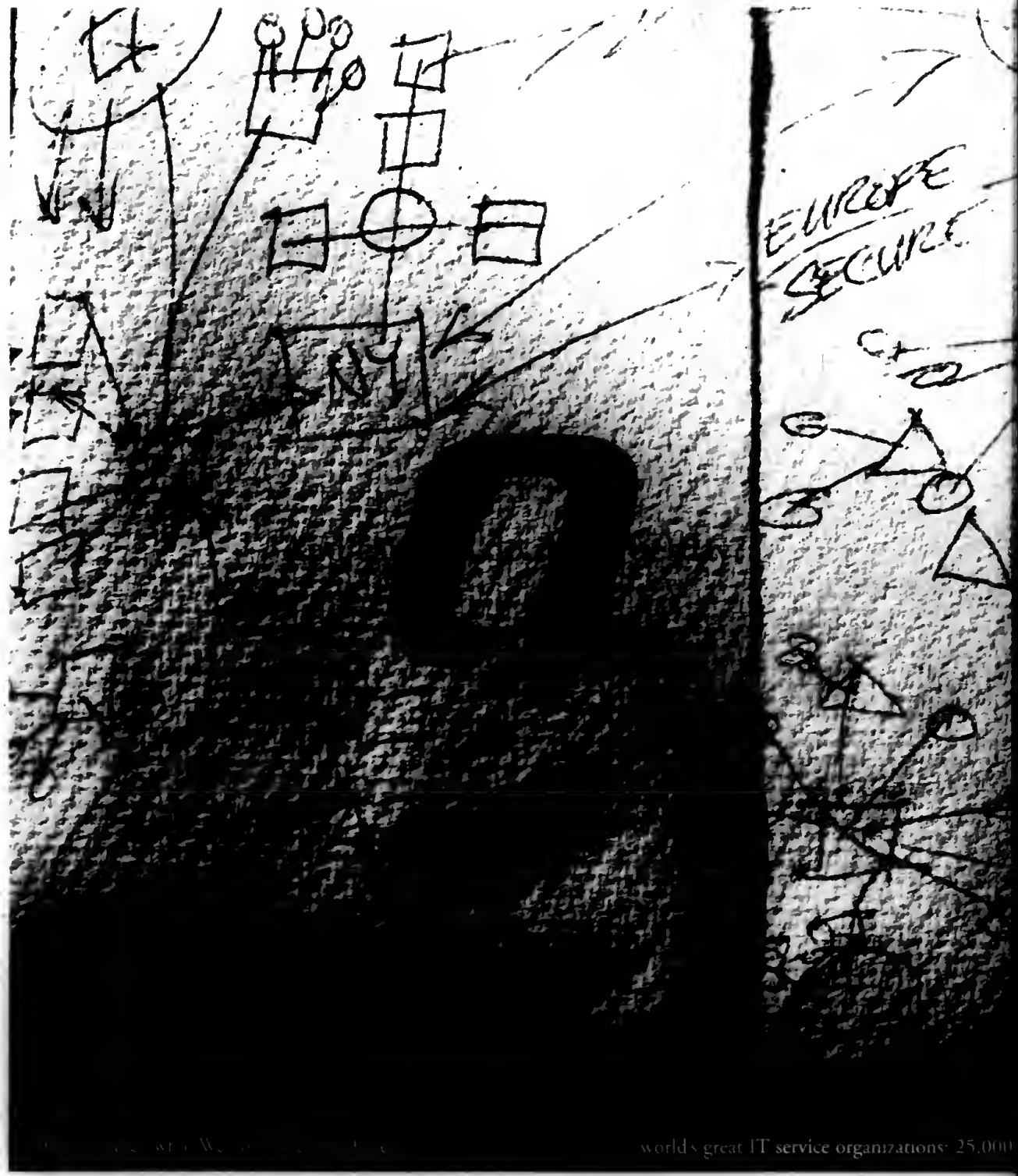

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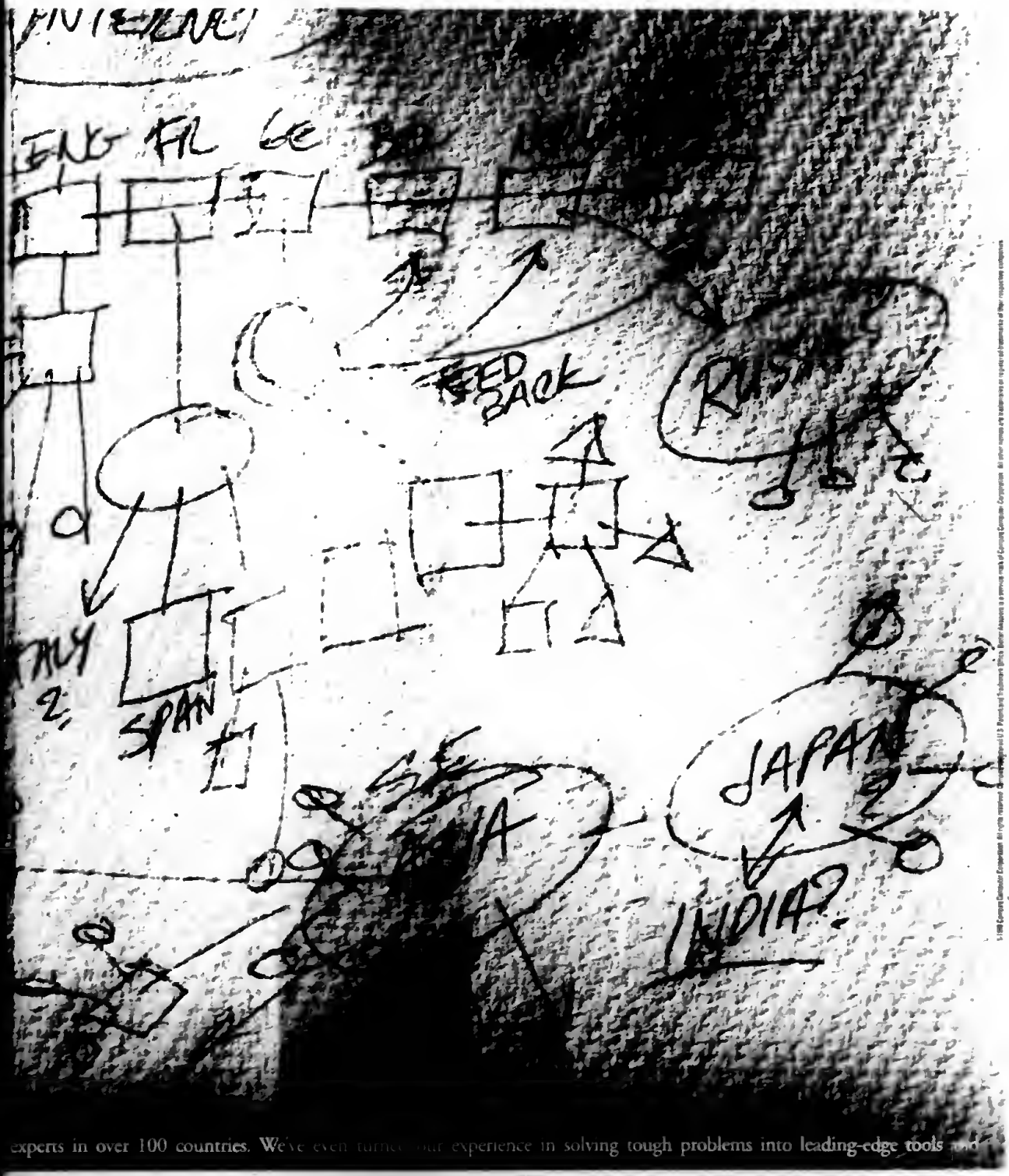

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Airport

CONTINUED FROM PAGE 29

director of marketing and business development at Plano, Texas-based EDS. The system displays flight information in both English and Chinese at the check-in counters, gates and baggage collection area.

"We had set some limits around the [EDS] database that in retrospect were too little," Davis said, adding that the system had more usage than anticipated.

SYSTEMS INTEGRATION

Incorrect data input was also to blame for the display monitors' malfunctions, making it difficult for passengers to find their planes, he said.

UNDERTESTED

Ian Stewart, regional vice president for Northeast Asia at international airline service supplier SITA, said systems weren't fully stress-tested until CLK opened for operation.

SITA developed the Common Use Terminal Equipment, a check-in system that lets airlines access passenger information through a shared network and shared set of terminal equipment. It also developed the Common Use Baggage Enterprise System, which supports baggage sorting and reconciliation functions.

"We assume that it is a volume issue. If you test with 10,000 transactions and hit it with 70,000 transactions, there may be some bottlenecks," Stewart said.

However, he was unavailable for comment on an incident where passengers were reportedly left behind while their flight took off with their luggage — something the baggage reconciliation system should have caught.

The extent of systems integration at CLK could be another cause for IT-related problems, Stewart and Davis agreed.

"The information that comes through [the flight information system] feeds into other systems and vice versa, and so if you have any hiccup anywhere down the line, then it impacts the other systems and it will potentially impact airport operations and passenger flow," Davis said.

In defense of the systems failures at CLK, Stewart said, "Any airport the size of CLK, when it opens is going to experience problems. I don't care how well you test it, it's impossible to have something as complex as that without having some difficulties."

WHAT IT'S MADE OF

The flight information system is composed of an Oracle7 database that runs on two Digital Equipment Corp. Alpha 4100 servers, 57 load-sharing Digital Alpha workstations, 16 data input PCs and two graphic input PCs. Information is displayed on 150 LCD boards.

The terminal network includes 591 workstations at CLK and the Hong Kong and Kowloon mass transit stations, 86 boarding gate readers, 444 printers for air tickets and boarding passes, 319 baggage tag printers and 111 hard-copy printers. □

Scott writes for Computerworld Hong Kong.

Keeping tabs on year 2000

CONTINUED FROM PAGE 29

tion abroad might be handled by a dozen carriers that have interdependency agreements. If one network switch that is date-sensitive fails, the connection would be lost.

MILLIONS OF MESSAGES

That could have real effects on monetary flow. Two systems for transferring payments and foreign exchange transactions (the Clearing House Interbank Payments System, or CHIPS, and the Fedwire in the U.S.) process $3 trillion in fund transfers on an average day, Petrikis said. The Brussels-based Society for Worldwide Interbank Financial Telecommunications (SWIFT), which advises and confirms payments, carries more than 3 million messages per day worldwide, he added.

"We should be realistic in accepting that some disruptions are inevitable."
– Ernest Petrikis, Joint Year 2000 Council

"The many interconnections of the global financial market infrastructure imply that financial market participants in the U.S. could be affected by Y2K-related disruptions in other financial markets," Petrikis said in his testimony. "We should be realistic in accepting that some disruptions are inevitable."

Petrikis said the Web site, operated by the Bank for International Settlements in Basel, Switzerland, will contain contact information for each country for governments, financial industry supervisors, chambers of commerce and major utilities.

"Such an open Web site is a nice idea in an idealistic world, but I don't know if companies will take the risk of using that," cautioned Howard Rubin, an analyst at Meta Group, Inc. in Stamford, Conn.

TOUGH QUESTIONS

Rubin said a wide variation in spending by foreign governments and industries (see chart) shows that global companies must act themselves. "Global companies are aware of the problem and [are] sending envoys abroad and asking tough questions," he said.

Still, a spokesman at J. P. Morgan & Co. in New York said international coordination from any source is helpful. For example, J. P. Morgan is carefully watching network interoperability tests begun last week by the Securities Industry Association in New York. "There's no way one company can handle all this on its own," said spokesman Ned McCormack. □

YEAR 2000 REPAIR COSTS

	Estimated repair cost for year 2000 work*	Percentage of 1996 gross domestic product
Russia	$32B	7.3%
Mexico	$19B	5.7%
Portugal	$5B	4.9%
Brazil	$36B	4.8%
Canada	$18B	3.1%
Korea	$23B	4.7%
U.K.	$43B	3.7%
Spain	$17B	3.0%
France	$42B	2.8%
Italy	$34B	2.8%
Argentina	$8B	2.8%
Belgium	$7B	2.7%
Netherlands	$10B	2.6%
U.S.	$188B	2.5%
Germany	$61B	2.5%
Australia	$10B	2.5%
Sweden	$6B	2.5%
Japan	$106B	2.3%
India	$4B	1.2%
China	$4B	0.5%
Average	$34B	3.3%

*Government and private sector

Source: Meta Group, Inc., Stamford, Conn., and Software Productivity Research, Burlington, Mass.

SHORTS

Software piracy up

Revenue losses to the worldwide software industry caused by piracy last year were estimated at $11.4 billion, according to the recently released third independent study on global software piracy by the Business Software Alliance and the Software Publishers Association. That is a reversal of the 16% decrease in estimated losses between 1995 and 1996, which was generally attributed to lower software prices, the report said. The countries with the highest dollar losses from software piracy are (in order) the U.S., China, Japan, Korea, Germany, France, Brazil, Italy, Canada and the U.K. Total losses for those 10 countries were $7.8 billion, or 68% of worldwide losses.

Technology acquired

Sunnyvale, Calif.-based NetRight Technologies, Inc., a maker of document management systems, last week acquired technology from San Mateo, Calif.-based FrontOffice to enhance its document management products. Product announcements from the pair are due by year's end.

Bulgarian outsourcer courts U.S. market

CONTINUED FROM PAGE 29

Rila works closely with the Bulgarian Telecommunications Co., Bulgaria's phone company, which will provide Rila with a high-speed Asynchronous Transfer Mode network.

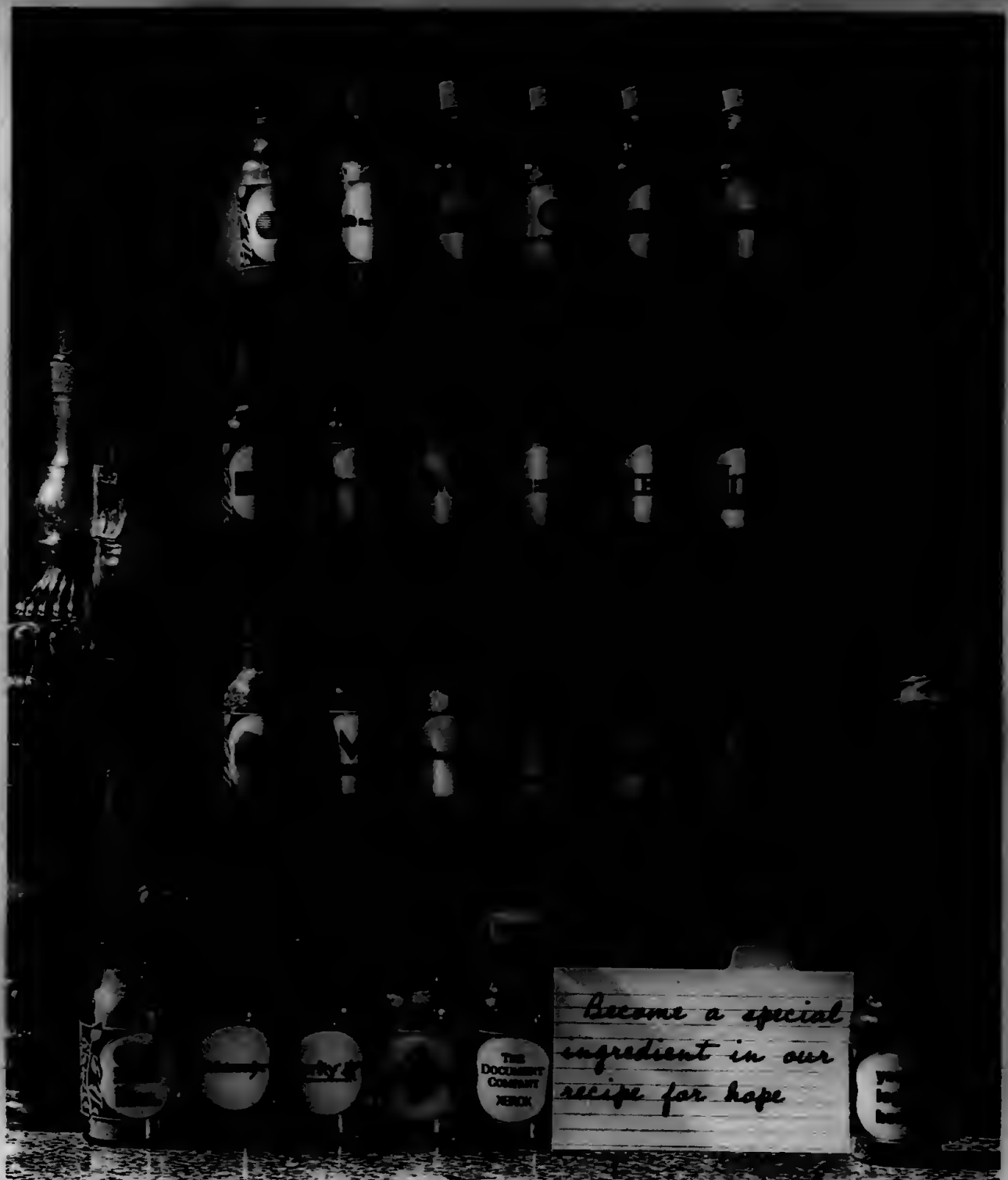
Still, the company, which was formed last month, has yet to sign any deals. "Places like India and the Philippines have already proven that they can do this [outsourcing] with minimal risk," said Marty McCaffrey, a visiting associate research professor at Naval Postgraduate School in Monterey, Calif.

McCaffrey has visited offshore outsourcing companies all over the world as part of his research, which shows savings to user companies of "upwards of 50% over U.S. prices," he said. Also, offshore companies are willing to take on year 2000 projects for a fixed price, something most American information technology consulting companies won't do.

"But going offshore also means you have risks," he said. The most common glitch is communication. Even foreigners who speak English may not understand the nuances of the language and our cultural issues, McCaffrey said.

Marvin Thornton, senior vice president and year 2000 project manager at Southtrust Bank, N.A. in Birmingham, Ala., said he wouldn't shy away from the Bulgarian start-up because it is new or in a Balkan country. However, the bank has decided not to turn over any year 2000 work to outsiders. The consultants it has hired will do the work on the bank's premises, he said.

"It's just safer that way," Thornton said. □



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Briefs

FAR EAST REPORT

Internet activity is booming in China, but few of the 1.2 billion residents can tap Internet resources

	Beginning of the year	End of June
Chinese accessing the Internet	505,000	1.18M
Chinese computers connected to the Internet	195,120	542,000

Source: China Internet Network Information Center (reported July 13 by *China Economic Times*)

Travel update released

Microsoft Corp. and American Express Travel Related Services Co. have launched Version 1.5 of AXI, an online corporate travel system.

The updated version has overdue audit history changes after ticketing and request frequent-flier upgrades as well as a car service to and from the airport. The companies said the product now has 100 corporate users.

IBM to tie Web-ified

IBM will extend Ellis to consolidate and manage the contents of Extensible Markup Language-based documents, Hypertext Markup Language documents, World Wide Web documents and audio data. David Sorensen, an analyst at International Data Corp. in Weston, Wash., said the project was designed to better support business processes and the Web.

Yahoo!'s numbers up

Top Web portal Yahoo, Inc. said its page views soared to an average of 103 million daily last month vs. 55 million in March. The Santa Clara, Calif., company also reported revenues of $40.2 million in its quarter ended June 30, up 190% from the same quarter last year.

Though the company lost $56 million in the period, it would [illegible] $4.62 million charge for acquiring Viaweb, Inc.

Purchasing via Web to save big bucks

▸ *But projects such as Hancock's not for all*

By Carol Sliwa

JOHN HANCOCK Mutual Life Insurance Co. brass hope their new intranet-based corporate purchasing system can save the company $20 million per year.

The Boston-based insurer spent $337 million last year on supplies needed to run the business, but a mere $28 million — only 8% — went through the central purchasing department. With its new intranet system in place, Hancock expects to boost that figure to 85% without any increase in staffing, said Roy Anderson, the company's director of corporate purchasing.

Not only will that let Hancock reduce paperwork, increase accuracy and speed the processing of orders, but it also will maximize leverage with its suppliers by centralizing bids and guaranteeing the purchase volume of just about anything it buys — from small-ticket items such as office supplies and business cards to higher-cost items such as computer equipment

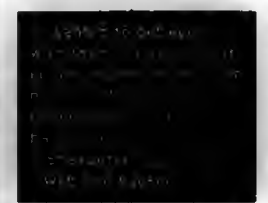
Purchasing, page 36

Coast Guard beefs up security after hack

By Laura DiDio

IN THE WAKE of a hacking incident last year that sank a key personnel database and cost $40,000 to recover lost data, the U.S. Coast Guard has intensified efforts to shore up network security.

The Coast Guard's multipronged initiative included shutting down illicit back doors the hacker used to access both the intranet and the database. The service also rebuilt the data-



base and eliminated remote dial-in access.

Those and other security initiatives came in response to the worst network hack by an outsider in the Coast Guard's history, according to Dave Swatloski, the agency's chief of information resources management. In March, Shakuntla Devi Singla, 43, of Fairfax Station, Va., pleaded guilty in U.S. District Court in Washington to accessing a federal computer without authorization and intentionally causing damage when she hacked into the Coast Guard's Oracle Corp. personnel database last July (CW, July 6).

Singla is a former Coast Guard employee who helped build the database she eventually hacked. According to court documents and Singla herself, she hacked the network because she was frustrated that the Coast Guard wasn't responsive to her complaints of improper conduct by an agency contractor.

Reached at home, Singla said, "I wanted to get even with them. I was frustrated and depressed because no one listened to my complaints of sexual harassment in the workplace. I did delete information, but I did not crash the system." She said that in hindsight, she regrets the incident and knows it was illegal.

On July 8, 1997, about eight people — including Singla — were logged on to the agency's

Coast Guard, page 36

World Wide Wait

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Top 5 best-performing Web sites	
AltaVista	6.51
Sprint	7.78
New York Times	8.76
Charles Schwab	8.99
Yahoo	9.05

Source: Keynote Systems, Inc., San Mateo, Calif.

Best areas to Web surf	
Milwaukee	10.97
Boston	11.51
Seattle	12.64
Worst areas to Web surf	
Cleveland	30.22
Phoenix	27.21
Columbus, Ohio	25.57

Banks try out 'E-checking'

By Bill Densmore

IN A COUPLE of years, when you tell a business partner the "E-check" is in the E-mail, some members of the banking industry want to be sure the payment's intermediate stops are U.S. Federal Reserve banks — not competitors.

In a nutshell, that is the impetus behind a $10 million, three-year pilot project of the Chicago-based bank association called the Financial Services Technology Consortium (FSTC). The initiative bore fruit on June 30 with the pilot E-mail transfer of a $32,000 payment from the U.S. Department of Defense to GTE Internetworking.

In backing the electronic-check initiative, BankBoston Corp., NationsBank Corp., IBM,

Banks, page 37

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Internet Commerce

Extranets • The World Wide Web • Intranets

Briefs

FAR EAST REPORT

Internet activity is booming in China, but few of the 1.2 billion residents can tap Internet resources

	Beginning of the year	End of June
Chinese accessing the Internet	505,000	1.18M
Chinese computers connected to the Internet	195,120	542,000

Source: China Internet Network Information Center (reported July 13 by *China Economic Times*)

Travel update released

Microsoft Corp. and American Express Travel Related Services Co. have launched Version 1.5 of AXI, an online corporate travel system.

The updated version lets travelers make itinerary changes after ticketing and request frequent-flier upgrades as well as a car service to and from the airport. The companies said the product now has 100 corporate users.

DB2 to be Web-ified

IBM will extend DB2 to manipulate and manage the contents of Extensible Markup Language-based documents, Hypertext Markup Language documents, World Wide Web documents and meta data. David Sonnen, an analyst at International Data Corp. in Blaine, Wash., said the project was designed to better support business processes and the Web.

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> – Shakuntla Devi Singla
> Web site hacker

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Source: Keynote Systems, Inc. (www.keynote.com), San Mateo, Calif.

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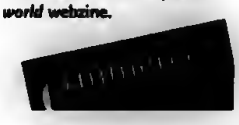


J. Crew connects browsers to buyers without discounting

By Alan Alper
San Francisco

WHEN J. CREW GROUP, INC., a global retailer and cataloger of prestige fashions, set up shop on the Web in June 1997, it realized that it wouldn't succeed with a business-as-usual approach. Beyond offering exquisite J. Crew khakis and crewnecks, it knew it must give customers a reason to return to its site. And with repeat visits would come repeat purchasing.

So the company added interactive games to its World Wide Web site (*www.jcrew.com*) to help promote new products, explained Brian Sugar, new-media director at J. Crew in New York, who spoke at the recent Giga Information Group Online Business '98 Conference here. It also added new catalogs and special promotions. The retailer even archived every catalog ever published on its site to let visitors shop down memory lane.

Most important, the mainframe-driven site tells customers whether items are out of stock and when they will be available. It recommends products to registered users based on the color and size of past purchases. And its Quick Clicks section gets customers to the 150 most popular items.

The mix of hard sell and entertainment has enabled J. Crew's site to grow beyond the company's expectations. It receives 50,000 visits per day and 18 page views per session. "It's 5% of J. Crew revenue," Sugar said. "That's far above where we thought it would be."

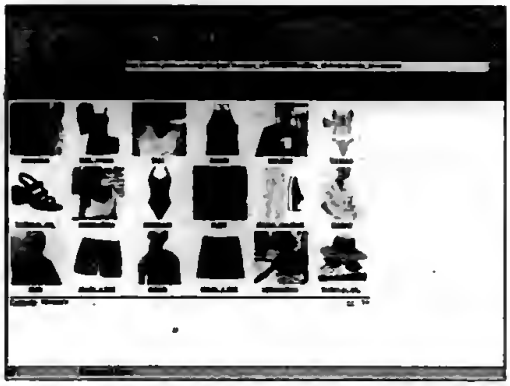
And so far, the site is profitable, he said. "We've got a 1.5% conversion rate [of browsers to buyers], and revenue is up 8% per day."

An interactive golf game debuted in February when J. Crew launched a line of golf clothing. Registered users can play a quick nine holes, and the best scorer each day is awarded a T-shirt.

Another game, in which lifeguards must save drowning swimmers while maintaining the proper level of sun protection (as depicted by a suntan meter), also received acclaim.

But one analyst on the panel chided Sugar, saying convenient ordering and lower cost are what drive consumers to shop on the Web, not how much fun they can have. Sugar responded, "Lowering our prices on the Web is not good for the brand. The worst thing you can do is to turn your Web site into a liquidation center. We're not about price or commodity, but about fashion. We want to keep the price the same as our other methods of distribution."

Now the company is looking at adding additional personalization features, among other things, and is in the process of selecting vendors. □



To get repeat visitors to its Web site, J. Crew added interactive games, new catalogs and special promotions

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Purchasing via the Web

CONTINUED FROM PAGE 35

and hired contract labor.

"I am now a less expensive customer, so I can ask for better pricing," Anderson said.

But though the potential benefits are enticing, any company that wants to set up a similar system should know that this sort of project isn't for the faint of heart, industry analysts said.

The software is expensive. The installation is complex and labor-intensive.

And a variety of company departments must cooperate like a pit crew at the Indianapolis 500 to make sure their pieces of the project make the entire engine run smoothly.

"You need strong leadership in the information technology department and buy-off up and down the chain of command," said Vernon Keenan, an analyst at Zona Research, Inc. in Redwood Shores, Calif. "It's easy for someone in the middle of IT to gum up these types of projects through passive resistance."

Hancock's purchasing department actually initiated the project, putting out requests for information in January for the software it would need to implement the system. By March, the department already was contacting suppliers to negotiate pricing and make sure online catalogs could be put in place.

Because as many as 1,000 of Hancock's 7,000 employees could use the system, it needs an easy way to enter new employees and remove old ones from the system, specify their purchasing privileges and institute an electronic approval process.

But implementing and managing such a hierarchical system with role-based security isn't easy, according to Vaughao Osmond, the technical project manager for the system. Staffers will have to integrate the BuyerXpert procurement software they bought from Netscape Communications Corp. with their PeopleSoft, Inc. human resources system to assign buying privileges precisely, Osmond said.

Then they have to integrate the Netscape product with their enterprise resource planning software — Geac Computer Corp.'s SmartStream — to make sure orders pass through back-end processing and electronic data interchange (EDI) systems. That isn't easy, Anderson acknowledged.

For example, the system must be able to account for a copy machine whose cost is split among four cost centers. Can one cost center's approval let the purchase go through? Do all cost centers have to signal their approval?

When all is said and done, Hancock employees and specialists from the information systems, accounts payable, human resources, finance, purchasing and EDI departments will have participated in the set-up of the new system, Osmond said.

Five professional service staffers at Netscape are helping Hancock, and four full-time Hancock employees are devoted solely to the corporate procurement project.

They started work last month and hope to have a pilot ready in the middle of next month. Parts of the company should be able to use the system by October, and the SmartStream interface should be ready in November, Anderson said.

By the end of next year, Anderson said he hopes to have $125 million to $150 million worth of spending going through his central purchasing department.

By 2000, he figures the company could be doing $200 million to $300 million of its $375 million total spending through the department.

Anderson said he expects a payback on the company's investment, which he declined to discuss, by the end of next April. □

Coast Guard

CONTINUED FROM PAGE 35

intranet when the database server crashed. It took 115 Coast Guard employees more than 1,800 hours to restore the lost data — mainly because of a faulty tape backup system, Swatloski said. "Had the tape backup not been bad, we would have only suffered 36 hours of downtime," Swatloski said.

Costs included $35,000 to manually re-enter the personnel data and about $5,000 for a new tape backup system, he said.

Singla was able to dial in to the network unimpeded by using the password of an unsuspecting end user, who had given it to her before Singla left the job. The faulty backup system did the rest.

"It's been a hard lesson learned," said Jerry Heinl, chief of systems security at the Coast Guard's Headquarters Support Command. "We are now especially emphasizing the importance of not sharing passwords."

That is crucial because the Coast Guard is migrating to an all-Windows NT network. "In NT, no one needs to know a user's password except the individual user," Heinl said. The Coast Guard had been running the proprietary Convergent Technologies operating system, which let administrators such as Singla know users' passwords.

To compensate for the fact that Windows NT is an open, standards-based operating system, the Coast Guard devised a layered approach to safeguard the NT servers. "We control all access points to the network. That means secure authentication to dial in to the network and firewalls around all the Internet servers," Heinl said.

The Coast Guard has always conducted background checks on security and systems administrators and outside contract workers, and Heinl said that policy will remain in place. To heighten security awareness among end users, all new hires must watch a video that outlines good security practices such as not sharing passwords. Additionally, workstations connected to the agency's intranet are now configured to automatically lock out usage after five minutes of being unattended, Heinl said.

The Coast Guard closed down the pathway Singla used to hack the database and shut off dial-up access to the Oracle database. "We've also rebuilt the entire database to ensure that we had no rogue passwords or IDs floating around," Swatloski said.

"We know we'll never have 100% foolproof security, but we can keep the risk at acceptably low levels," Heinl said. □

Banks try out 'E-checking'

CONTINUED FROM PAGE 35

GTE Internetworking and several software partners set themselves on a potential collision course with the likes of Microsoft Corp., First Data Corp., CheckFree Corp., Intuit Corp. and others that are trying to make names for themselves in the bill payment/presentment world.

"E-check is the banking industry's attempt to retain control of the payment system and new revenue streams," said Avivah Litan, research director for interactive financial services at Gartner Group, Inc. in Stamford, Conn. "And that's exactly why the banks that are backing this are backing it."

COMPLICATIONS

But it isn't that simple. NationsBank and IBM are part of the Integrion Financial Network of 18 banks and Visa International Service Corp. And Integrion and CheckFree are developing a competing Internet-based electronic check service. Both camps said they won't really be revving up the market until 2000 or later.

Whatever the outcome, at stake for IBM is control of about 80% of the paper check, back-shop processing market. CheckFree, Visa, Intuit and Microsoft, on the other hand, have no vested interest in perpetuating the current system.

Paper checks are the backbone of the U.S. payments industry. Of $87.5 billion in payments exchanged last year by check, credit, debit, wire and the Automated Clearing House network, a whopping 74%, or $64.7 billion, was in paper form. And paper check volume continues to grow, although at a much slower clip than plastic. For banks, the opportunity to squeeze cost out of check processing is compelling.

The electronic check is initially aimed at the business-to-business market and was designed to leverage the ubiquity of Internet connectivity. In theory, all a business will need to prepare and send electronic checks is an Internet E-mail connection; about $50 worth of hardware, including a smart card and smart-card reader; and software that either connects to its legacy accounting system or presents a browser-like forms interface to the desktop for filling in the usual check information.

To make the transaction secure, the customer and the recipient are each issued smart cards that contain unique digital identification certificates. The certificate is used to "sign" an outgoing E-mail message containing check information. The message goes to the E-mail address of the recipient, who can open it and verify the sender's digital signature. The recipient can record the payment in the usual fashion, then forward the E-mail to the bank for "deposit." The bank would then accept the deposit and E-mail the payer's bank for clearance and debiting against his corporate account.

SIGNED AND DELIVERED

In the trial, the government agency took less than five minutes to create and send the electronic check, said Frank Jaffe, director of applied technology at Bank-Boston and an FSTC vice president.

In principle, only latency of Internet connections might prevent the transaction from occurring in real time, Jaffe said. But architects of the electronic check deliberately designed the system to operate in "batch" mode for now so that it mirrors the risks and responsibilities of traditional check processing. For example, they want to be sure the originating payee's bank has the opportunity to bounce the check because of insufficient funds.

THE CHECK'S IN THE E-MAIL

What a business needs to send electronic checks:

- An Internet E-mail connection
- About $50 worth of hardware, including a smart card and smart-card reader
- Software that connects to its accounting system or presents a browserlike forms interface for filling in the usual check information.

Banks should like electronic checks because they can eliminate human error and the need to truck or ship canceled checks around the world.

Jaffe said he sees companies that write hundreds of checks as the biggest early beneficiaries of electronic checks because they can eliminate costly paperwork.

Also, Jaffe said, an electronic check message can be sent with additional information about the purpose of the payment — invoice numbers, explanations and the like — unlike payment by ACH or procurement cards.

But Jaffe is careful not to tout actual figures. Estimates of the processing costs of physical checks vary from 50 cents to $3 per check. That variation makes it hard to predict how much electronic checks will save and who will save the most, he said.

Moreover, electronic checks will require maturation of the Internet's public-key infrastructure before the digital certificates it relies on can be widely used. Savings won't come quickly, he acknowledged.

"The numbers are very difficult from a credibility standpoint, in part because it is really an unknown how much the ongoing maintenance and support costs for a system like Echeck are around public-key infrastructure," he explained. "Part of the cost-savings argument revolves around whether you can reuse those systems for other purposes. We argue the banks are going to be in the business of issuing certificates anyway, so that whole management structure will be used for many things." □

Densmore is a freelance writer in Williamstown, Mass.

Hacker defaces German pol site

By Mary Lisbeth D'Amico
MUNICH, GERMANY

A HACKER SSEAK-IN over the weekend of July 11 caused havoc on the World Wide Web site of Germany's center-right Free Democratic Party (FDP).

The hacker, who was unideotified as of last week, broke in to five servers that belonged to the FDP on Sunday night or Monday morning between 6:40 p.m. and 3 a.m., causing "substantial damage," said Thomas Volkmann, an FDP spokesman.

The servers had to be taken out of operation and were restored to service Monday afternoon.

"Our home page was put into complete confusion," Volkmann said. For example, the attack destroyed files that contained the FDP's political credo, set up icons that led nowhere and scrambled the site's hyperlinks so that they brought users to the home page of another German political party, the Christian Democratic Party, instead of to the FDP's original links.

The FDP Web site (*www.liberale.de*) receives about 240,000 hits per week, Volkmann said.

The political party's network operator, in Wiesbaden, Germany, is still trying to track down the hacker, Volkmann said. The FDP immediately contacted the offices of Germany's other main political parties, but it appears there were no such attacks elsewhere.

In a statement, the FDP described the attack as "not very creative" as well as "very simplistic and humorless." With 80,000 members, the FDP is aligned with Chancellor Helmut Kohl's center-right Christian Democratic Party. The FDP describes itself as seeking "less government and less bureaucracy through decentralization, privatization and the reduction of regulations." □

D'Amico writes for the IDG News Service in Munich.

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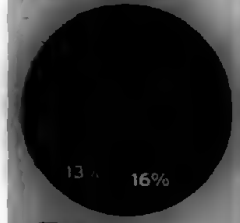
Briefs

Predictions are that between 4 million and 8 million new subscribers will seek digital personal communications services each year through 2002. The leading carriers are:



- Sprint PCS
- PrimeCo PCS
- Pacific Bell
- AT&T Wireless
- Other

Source: Strategis Group, Inc., Washington

Growth in U.S. call centers, 1996 to 2002*

Outsourced call centers	+21%
In-house call centers	+5%
Total centers	+7%

*Projected

Source: Datamation, Inc., New York

Training video tackles E-mail abuse

By Roberta Fusaro

E-MAIL ABUSES in the workplace range from accidentally sending a personal note to everyone in the company to the serious legal problem of sending sexually or racially charged messages.

But many companies lack clear E-mail policies or employee training to prevent those misuses. That prompted Boston-based Commonwealth Films, Inc. to produce *The Plugged-In Mailbox: E-mail Uses and Misuses.*

The 20-minute corporate training film offers dramatizations based on actual cases of E-mail misuse in the workplace — for instance, a heated exchange of E-mail insults among co-workers.

Some scenes in the film were shot at Kraft Foods, Inc., which is using the video as part of a relatively aggressive E-mail training effort that aims to keep the company's E-mail system focused on business, said Theodore L. Banks, associate general counsel at the Northfield, Ill.-based company.

The consequences of E-mail abuse can be costly. For example, an allegedly racist E-mail message was at the center of a $30 million discrimination suit filed earlier this year against Morgan Stanley, Dean Witter & Co. The case was settled in March.

Kraft hasn't had any real E-mail disasters, Banks said, just a few instances in which employees clogged the network with chain letters.

Still, the company will use *Plugged-In Mailbox* in its orientation program for new employees. Kraft is moving from Microsoft Corp.'s Mail program to Microsoft Exchange in the next few months, and the video E-mail training will be com-

Video, page 40

Brokers can monitor E-mail more easily

By Thomas Hoffman

STOCKBROKERS generate a ton of E-mail — and they have to double-check every bit of it.

Last December, the Securities and Exchange Commission and the National Association of Securities Dealers in Washington began to require brokerages to store and check every electronic message between sales representatives and clients for illegal or questionable activities.

The new rule has forced most brokerages to beef up staff that read through individual messages — both written and electronic. But a handful of regional brokerages have begun to use an E-mail scanning system to verify compliance.

Friedman, Billings, Ramsey & Co. (FBR), an investment bank-

Brokers, page 40

Remote-management tools help keep tech staff lean

By Patrick Dryden

THE LARGEST division of HoneyBaked Ham Co. just wants to sell hams, not support LANs.

By automatically managing files on point-of-sale networks at 100 stores, the Georgia division of HoneyBaked Ham has reduced support needs and enabled daily instead of weekly sales reports.

Before automation, district managers had to call store managers every Monday morning, key information in to a spreadsheet and then upload it to a database to generate sales and inventory reports. Week-old data hampered managers' ability to respond to store needs during the Easter, Thanksgiving and Christmas seasons, when the company makes 70% of its sales.

Store managers spent too much time at their PCs, and sales clerks sometimes got lost navigating Windows. Central information systems staff had to call each store to walk users through patches, configuration changes and application updates.

Now, remote file-management tools let store staffers "do what they were hired to do — sell hams, not mess around with computers," said David Crenshaw, senior analyst at HoneyBaked Ham in Atlanta.

Remote management, page 40

NT still mostly for file and print

By Sharon Gaudin

SLIGHTLY MORE than half of Windows NT Server licenses sold last year were bought to handle file and print services, according to a recent study by International Data Corp. (IDC).

And some observers said the finding flies in the face of Mi-

NT, page 40

Although sales figures steadily rise, Windows NT is mainly used to handle file and print services, not run applications

File and print services	54%	Mixed services*	70%
Application services	25.2%	Application services	20%
Mixed services*	20.8%	File and print services	10%

* Such as applications in a database, database in a Web server

Source: International Data Corp., Framingham, Mass.

Customer Relationship Management

Whether your customers are delighted, or simply delighted to leave, revolves around knowing your customer data.

Pro[illegible] Customer

Assess marketing R[illegible] analyze churn, and m[illegible]

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Who are your most profitable customers...and *why?* How many customers are you losing... and *why?* What value do your customers see in your products and services...or those of your *competitors?* Instead of just storing your customer data, explore all the possibilities with the SAS Solution for Customer Relationship Management.

It's the only software that integrates the full scope of managing customer relationships. Collect information at all customer contact points...then analyze data to better understand customer needs. Refine business strategies around your most profitable customers. Determine lifetime customer value. All by just pointing and clicking.

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The Enterprise Network

LANs • WANs • Network Management

Briefs

Predictions are that between 4 million and 8 million new subscribers will seek digital personal communications services each year through 2002. The leading carriers are:

- Sprint PCS
- PrimeCo PCS
- Pacific Bell
- AT&T Wireless
- Other

Source: Strategis Group, Inc., Washington

Ethernet family

Allied Telesyn International last week announced a family of Gigabit Ethernet switches, including the AT-9108, an eight-port backbone switch that costs $16,995. The Sunnyvale, Calif., vendor also unveiled the AT-8518, a workgroup switch with 16 10M and 100M bit/sec. ports and two Gigabit Ethernet ports. It costs $9,495. Both are shipping now and support World Wide Web-based management.

Document upgrade

Pleasanton, Calif.-based Documentum, Inc. last week announced the upgrade of its Enterprise Document Management System. Among the new capabilities are customizable Web applications, the ability to electronically capture paper documents, a Web-based document viewer and an automated storage application for archiving documents. It ships this month.

Growth in U.S. call centers, 1996 to 2002*

Outsourced call centers	+ 21%
In-house call centers	+ 5%
Total centers	+ 7%

*Projected

Source: Datamonitor, Inc., New York

Training video tackles E-mail abuse

By Roberta Fusaro

E-MAIL ABUSES in the workplace range from accidentally sending a personal note to everyone in the company to the serious legal problem of sending sexually or racially charged messages.

But many companies lack clear E-mail policies or employee training to prevent those misuses. That prompted Boston-based Commonwealth Films, Inc. to produce *The Plugged-In Mailbox: E-mail Uses and Misuses.*

The 20-minute corporate training film offers dramatizations based on actual cases of E-mail misuse in the workplace — for instance, a heated exchange of E-mail insults among co-workers.

> An allegedly racist E-mail message was at the center of a $30 million suit filed earlier this year

Some scenes in the film were shot at Kraft Foods, Inc., which is using the video as part of a relatively aggressive E-mail training effort that aims to keep the company's E-mail system focused on business, said Theodore L. Banks, associate general counsel at the Northfield, Ill.-based company.

The consequences of E-mail abuse can be costly. For example, an allegedly racist E-mail message was at the center of a $30 million discrimination suit filed earlier this year against Morgan Stanley, Dean Witter & Co. The case was settled in March.

Kraft hasn't had any real E-mail disasters, Banks said, just a few instances in which employees clogged the network with chain letters.

Still, the company will use *Plugged-In Mailbox* in its orientation program for new employees. Kraft is moving from Microsoft Corp.'s Mail program to Microsoft Exchange in the next few months, and the video E-mail training will be com-

Video, page 40

Remote-management tools help keep tech staff lean

By Patrick Dryden

THE LARGEST division of HoneyBaked Ham Co. just wants to sell hams, not support LANs.

By automatically managing files on point-of-sale networks at 100 stores, the Georgia division of HoneyBaked Ham has reduced support needs and enabled daily instead of weekly sales reports.

Before automation, district managers had to call store managers every Monday morning, key information in to a spreadsheet and then upload it to a database to generate sales and inventory reports. Week-old data hampered managers' ability to respond to store needs during the Easter, Thanksgiving and Christmas seasons, when the company makes 70% of its sales.

Store managers spent too much time at their PCs, and sales clerks sometimes got lost navigating Windows. Central information systems staff had to call each store to walk users through patches, configuration changes and application updates.

Now, remote file-management tools let store staffers "do what they were hired to do — sell hams, not mess around with computers," said David Crenshaw, senior analyst at HoneyBaked Ham in Atlanta.

Remote management, page 40

Brokers can monitor E-mail more easily

By Thomas Hoffman

STOCKBROKERS generate a ton of E-mail — and they have to double-check every bit of it.

Last December, the Securities and Exchange Commission and the National Association of Securities Dealers in Washington began to require brokerages to store and check every electronic message between sales representatives and clients for illegal or questionable activities.

The new rule has forced most brokerages to beef up staff that read through individual messages — both written and electronic. But a handful of regional brokerages have begun to use an E-mail scanning system to verify compliance.

FBR's Eric Y. Generous

Friedman, Billings, Ramsey & Co. (FBR), an investment bank-

Brokers, page 40

NT still mostly for file and print

By Sharon Gaudin

SLIGHTLY MORE than half of Windows NT Server licenses sold last year were bought to handle file and print services, according to a recent study by International Data Corp. (IDC).

And some observers said the finding flies in the face of Mi-

NT, page 40

Although sales figures steadily rise, Windows NT is mainly used to handle file and print services, not run applications

WINDOWS NT USAGE	
File and print services	54%
Application services	25.2%
Mixed services*	20.8%

UNIX USAGE	
Mixed services*	70%
Application services	20%
File and print services	10%

* Such as applications to a database, database to a Web server

Source: International Data Corp., Framingham, Mass.

Video tackles E-mail abuse

CONTINUED FROM PAGE 39

bined with the actual software training. Kraft also has posted a presentation regarding corporate E-mail usage on the company's intranet.

Mary White-Dollmann, director of records management at Conoco, Inc. in Houston, said her company also uses *Plugged-In Mailbox* as a preventative tool. She said it is one of a few training tools for E-mail issues she has seen.

The film, released earlier this month, costs $650 per copy.

Only 18% of the top 500 U.S. companies have adopted E-mail policies or introduced formal E-mail training procedures, according to the Electronic Messaging Association, based in Arlington, Va.

Mark Levitt, an analyst at International Data Corp. in Framingham, Mass., said that is because, on a theoretical level, the E-mail usage policies are a political minefield. Developing a comprehensive policy requires tackling such issues as privacy rights, legal liabilities and trade secrets.

Companies may have in-house legal counsel to address specific incidents but usually haven't tried to address all those issues to one statement, Levitt said. □

Brokers

CONTINUED FROM PAGE 39

ing and securities firm in Arlington, Va., for example, uses a scanning system called Assentor from SRA International, Inc., also in Arlington.

The software was designed to catch phrases such as "I've got a stock tip for you" and send alerts to compliance officers about potentially dangerous wording.

Without the software, FBR would have had to hire at least one more compliance staffer to help scour through 200 to 300 E-mail messages per day, said Eric Y. Generous, the company's chief financial officer.

"We're saving at least one full-time person in our compliance office — or $50,000 to $75,000 per year," Generous said. That means the investment bank's $100,000 software investment should pay for itself in two years, he said.

Before it discovered Assentor last year, Scott & Stringfellow, Inc. planned to write application interfaces to link its systems E-mail and compliance systems to retain every piece of E-mail that came in or out of the Richmond, Va.-based investment bank, said Derek Brooks, manager of application development at the bank. But because regulators wanted a searchable format, the bank still "would have needed a huge compliance department" just to sort through E-mail, Brooks said.

Instead, Scott & Stringfellow uses Assentor to keep tabs on its 275 registered representatives for the past three months. Brooks said his company didn't conduct a cost-savings analysis before it installed the software, but he said the system will pay for itself in a year and a half because the company won't have to add compliance staffers.

"When you've got 600 people sending E-mail and every piece has to be reviewed before it's sent on, that could become unbearable," Brooks said.

The software was designed to catch phrases such as "I've got a stock tip for you" and send alerts to compliance officers about potentially dangerous wording.

Another Assentor user — Jim McCollister, senior vice president of operations at Ragen MacKenzie, Inc. in Seattle — said his company began to use the software six months ago because it "hadn't found any other software with the same capabilities" and were geared toward the securities industry. McCollister said the software has worked "extremely well."

Other vendors that eventually may offer similar products include antivirus software maker Trend Micro and Control Data Corp., said Mark Levitt, an analyst at International Data Corp. in Framingham, Mass. But none actually has done so.

Still, most E-mail systems aren't equipped to handle scanning or archiving and require add-on products to do so, even though they are being used to transport potentially sensitive information, Levitt said. □

Remote management

CONTINUED FROM PAGE 39

Many businesses can't afford to build and support the constant connection of a wide-area network, yet they prefer the functionality of a fat client for their applications instead of applets and browsers, said Colin Mahony, an analyst at The Yankee Group in Boston.

SUPPORT NEEDS

A retail chain with small shops is a perfect example of a business that can succeed on cost-effective intermittent links, Mahony said. Yet support can get out of hand because databases and applications must be kept synchronized.

"They need a tool to keep up with business reporting as well as IS management needs," Mahony said.

RemoteWare from XcelleNet, Inc. in Atlanta handles those needs, said Bill Pratt, finance vice president at HoneyBaked Ham.

"We're more efficient on the IS side without being penny wise and pound foolish," Pratt said.

RemoteWare allows HoneyBaked Ham to "change gears quickly without having to throw people at a support problem," he said. For example, sales and marketing managers can have new functions added to store applications when they see critical trends affecting sales and customer service.

Just one or two IS operators can maintain the Windows NT server, the databases and homegrown applications and two to four Windows-based PCs at stores in 15 states, Crenshaw said.

RemoteWare lets HoneyBaked Ham add new functions to store applications when it sees critical trends affecting sales

RemoteWare automatically polls each store nightly, retries the process if necessary and warns IS of problems. It gathers data from homegrown sales, inventory, scheduling, payroll and forecasting applications, and it distributes new or updated software.

"We couldn't maintain a distributed LAN environment without this workhorse," Crenshaw said.

NEXT WAN

However, the company is starting to require more timely management and reporting capabilities. Thus, it is time to consider migrating from dial-up links via RemoteWare to the constant connection provided by a WAN, Crenshaw said.

One reason is that, even though IS started to poll stores several times a day during holiday sales seasons, business managers seek more immediate information about sales transactions.

And although RemoteWare lets central IS operators fetch and replace files for PC configuration, applications and databases, they sometimes need interactive remote-control capability to troubleshoot problems, Crenshaw said. □

NT sticks to file and print

CONTINUED FROM PAGE 39

crosoft Corp.'s claims that NT is an enterprise-level player.

Despite long-standing problems with NT's scalability and reliability, Microsoft recently has raised NT's flag on the enterprise summit, claiming that it has taken over many mission-critical applications in corporate America.

But those figures may be the latest chink in Microsoft's armor, which has been banged around before by claims that NT isn't ready for the big time.

JUMPED GUN

The IDC numbers — as well as interviews with other consultants — show that Microsoft may have raised the victory flag a bit prematurely.

"We don't see people using NT around their mission-critical stuff," said Larry Podmolik, vice president of research and development at Strategic Technology Resources, a systems consultancy in Chicago. "It's not odd to see a Sun box up for a year without a reboot. NT servers typically have to be rebooted a lot, and that's not acceptable in mission-critical environments."

Dan Kusnetzky, an analyst at Framingham, Mass.-based IDC, said that right now Microsoft stands fairly alone in its claims that NT is enterprise-ready.

IDC's figures may be the latest chink in Microsoft's armor, which has been banged around before by claims that NT isn't ready for the big time.

"People say they're planning on using NT for major enterprise-class workloads — down the road," Kusnetzky said. "It's acceptable to reboot a printer but not a whole company."

But Microsoft interprets IDC's numbers differently.

Jeff Price, lead product manager for Windows NT Server, said there are a few factors to be considered.

First, he said that file and print services are mission-critical for some companies, and that would put their use of NT at an enterprise level.

He also said the fact that a lot of companies have one centralized multiuse server compared with many file and print servers for individual departments skews the numbers. NT might be used as the centralized server, but the multiple file and print servers get a higher head count.

PROOF IS IN THE PUDDING

But Kusnetzky said corporate users are waiting for NT 5.0 — which still doesn't have an official ship date but is generally expected late next year — before they dare to put mission-critical functions on NT.

"The thrust of the next release of NT is supposed to get rid of a lot of the problem areas that call for NT to be rebooted," he said. "People think that will be *the* platform, but it's just not there yet." □

Cabletron pushing Layer 3 switch

▸ *Vendor slashes price of SmartSwitch Router by 55%*

By Bob Wallace

USERS STAND to save $15,000 per system while boosting network performance if they cash in on a recently announced promotion that Cabletron Systems, Inc. is running on its Layer 3 switch.

The Rochester, N.H.-based vendor cut the price of its SmartSwitch Router by 55%, from $27,970 to $12,995 until Sept. 30.

Layer 3 systems are advanced LAN switches that perform high-speed routing, eliminating the need for expensive and slow high-end routers while turbocharging corporate data networks.

The SmartSwitch Router can route 15 million packets per second. By comparison, a high-end Cisco Systems, Inc. 7505 router can route only 500,000 packets per second.

The Cabletron system can handle IP and IPX protocols. Cabletron got the system with its January acquisition of startup Yago Systems, Inc. and has been shipping it since May.

Cabletron is trying to quickly create a market for what analysts agreed is its hottest product and to overcome flat growth.

The product competes with 3Com Corp.'s CoreBuilder 3500 and Bay Networks, Inc.'s Accelar. Cisco sells several Layer 3 switches.

CABLETRON'S SMARTPACKAGE

Base product: An eight-slot SmartSwitch Router (Layer 3 switch)

Equipped with: 16 10M/100M bit/sec. ports, power supply, control module and router and management software

Regular price: $27,970

Promotional price: $12,995

Offer expires: Sept. 30

Source: Cabletron Systems, Inc., Rochester, N.H.

AND THEY WILL COME

"Lower-priced higher-performance switches will attract companies that are considering using the technology and tire-kickers," said Craig Johnson, president of PITA Group, a Portland, Ore., research and consulting firm. "Users will take advantage of the promotion to buy one or two or three to five switches to solve immediate performance problems."

The Cabletron promotion is the first of its kind for Layer 3 switches, Johnson said. And as the promotion is extended to distributors, users can probably negotiate even lower prices from those third parties.

Other major Layer 3 switch vendors, including 3Com, Bay and Cisco, aren't cutting prices on their own products but won't rule it out.

"We look at promotions as a legitimate marketing tool that we would apply when we think we can get an advantage," a 3Com spokesman said. That could include Layer 3 switching, he added.

"I think you'll see more promotions as the Layer 3 switch market is still in its early stages and the vendors realize that these boxes are hot products," Johnson said. □

NEW PRODUCTS

COMPATIBLE SYSTEMS CORP. has announced Windows NT and Macintosh client software for its IntraPort Virtual Private Network Access Server.

According to the Boulder, Colo., company, the server software allows users to create private data networks that use the public Internet as a backbone. The server can support virtual connections for up to eight simultaneous, secure tunnels. The new IntraPort clients, which join the previously offered Windows 98 client, may be used over Point-to-Point Protocol dial-up connections or Internet-attached Ethernet connections.

The server costs $4,995.

Compatible Systems
(303) 444-9532
www.compatible.com

HILGRAEVE, INC. has announced DropChute Version 1.1, Windows-based software for file exchange through firewalls and expanded virus protection.

According to the Monroe, Mich., company, users drag and drop files onto recipient icons, and the software automatically calls the recipient PC, compresses and encrypts data, checks for viruses and delivers files without stopping on mail or File Transfer Protocol servers. It can resume interrupted transfers and send files via the Internet, TCP/IP networks or modems.

DropChute costs $50.

Hilgraeve
(734) 243-0576
www.hilgraeve.com

XYPLEX NETWORKS has announced EdgeGuardian, a wide-area network router with integrated virtual private network (VPN) hardware.

According to the Littleton, Mass., company, the router can support up to four T1 lines, with integrated channel service unit/data service unit IP Routing and 10M bit/sec. or 10M/100M bit/sec. Ethernet. To secure packets of information traveling over a VPN, it uses a hardware implementation of the Layer 3 IPSec protocol to perform authentication and hardware encryption. A World Wide Web-based interface for configuration and administration is included.

The router costs $9,995.

Xyplex Networks
(978) 952-4700
www.xyplex.com

Every year, the Computerworld Smithsonian Awards recognize organizations that have demonstrated vision and leadership in using information technology in new ways. This year, Fannie Mae won for their efforts to develop Internet technology that allows lenders to help more people own their own homes. Sybase is proud to be the technology behind it. And behind 24 other nominees as well. For more information, call 1-800-8-SYBASE.

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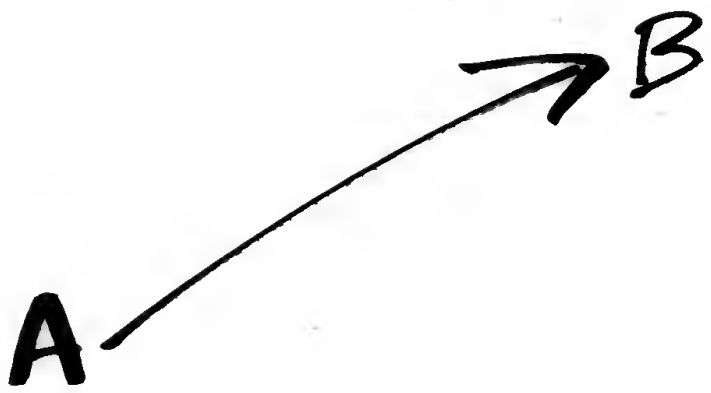

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Software

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Briefs

PIRACY ALERT

■ Of the 574 million new business software applications installed globally last year, 228 million — or four in every 10 applications — were pirated, an increase of 2 million from 1996.

Source: Business Software Alliance, Software Publishers Association, both in Washington

Programmers online

Developers looking for programming information on the World Wide Web are the target of a search engine service launched by One Stop Corp. in Sunnyvale, Calif. OneStop Developer (www.onestop.com/dev) lets users trawl for information with VCR-style controls. Users also can browse through a preassembled series of related sites.

Oracle upgrades

Oracle Corp. in Redwood Shores, Calif., this week plans to announce an upgrade of its process manufacturing software that can handle process and discrete manufacturing. Oracle Process Manufacturing 4.0, which is due next month, also will be able to share product routing information with the same file layout as Oracle's applications suite. Oracle bought the manufacturing software, formerly called Gemini, last year.

New Windows apps

OrbixWeb, a CORBA software product released last week by Iona Technologies in Cambridge, Mass., was designed to let those who use Windows-developed rapid application development tools develop applications that can run in non-Windows environments.

The Component Object Model/Common Object Request Broker Architecture bridge was beta-tested at 900 sites, Iona officials said. OrbixCOMet costs $495 per developer.

XML gaining momentum

▸ *New standard enables data manipulation*

By David Orenstein

DEVELOPER DAVID LINGREN gives a lot of credit to Extensible Markup Language (XML).

Where he and his colleagues once labored to create proprietary protocols to transmit information to customers, they now use the open XML standard. That means faster development times for his company, Dun & Bradstreet, Inc., a Murray Hill, N.J.-based supplier of credit information and other business intelligence.

And it means more flexible, manipulable data for customers rather than page after page of written reports, said Lingren, who is director of advanced development at the company.

XML is a nascent standard that goes beyond its Hypertext Markup Language (HTML) cousin as a set of document formatting tags that work on any type of computer. It allows data to be shared and transmitted among applications on servers or within applications from server to client. The difference is that XML tags can individually identify data in a document with useful classifications, meaning the data can be manipulated, whereas HTML affects only appearance.

XML, page 44

LANGUAGE PRIMER

LANGUAGE	DEVELOPED	BULK	ABILITIES
Standard Generalized Markup Language (SGML)	1986, the "granddaddy of markup languages"	Bulky and complex	Conforms to author-defined Document Type Definitions (DTD); content can be tagged to reflect its meaning and appearance
Hypertext Markup Language (HTML)	1990 by Tim Berners-Lee	Lean and limited	Sets layout and appearance of documents; content can't be tagged for meaning, only appearance
Extensible Markup Language (XML)	Endorsed this year by World Wide Web Consortium	Leaner than SGML, more flexible than HTML	Users can use DTDs and tag content for meaning; can run more efficiently over low bandwidth

Source: International Data Corp., Framingham, Mass.

REVIEW▸ *Drumbeat 2.0*

Beating a path to the database

By Christopher Lindquist

YOU HAVE THE database, and your users have the Web. Elemental Software's Drumbeat 2.0 lets you put them together — with remarkably little effort.

Most visual Hypertext Markup Language (HTML) editors, such as NetObjects, Inc.'s Fusion and Microsoft Corp.'s FrontPage, focus on making it simple to create visually attractive pages. Drumbeat 2.0 takes that a significant step further: It lets you easily build complex pages that derive their content from comma-separated value files or Open Database Connectivity-compliant databases, such as Microsoft Access and SQL Server.

Drumbeat, page 45

Process manufacturer streamlines orders

▸ *Marcam software offers much-needed flexibility*

By Craig Stedman

FOR A PROCESS manufacturer Specialty Minerals, Inc., change is good.

But the homegrown mainframe and minicomputer applications used by the limestone and talc mining company don't support the changes it wants to be able to make to quickly tailor order processing and product shipments to the demands of individual customers.

That flexibility is a must-have item, said Mike Hamme, director of customer service at Specialty Minerals. With products "that sell for pennies a pound and tend to ship by the ton," delivery costs can account for up to half of a customer's bill, he said. And different customers want packaging and billing to be handled in unique ways.

To meet those needs, Specialty Minerals, a $400 million division of New York-based Minerals Technology, Inc., is installing process manufacturing software with built-in order-management tools.

The Unix software, developed by Marcam Solutions, Inc. in Newton, Mass., should give customer service workers at Specialty Minerals the leeway to set up "a multitude" of different packaging, shipping and billing processes for customers, Hamme said.

That would make life much easier for the company, which processes the limestone and talc into calcium carbonate to use in paper, plastics, pharmaceuticals and other products.

Now, Hamme said, each special customer request requires a programming change on the mainframe or IBM AS/400.

Orders, page 44

Automated response tool serves more customers

By Roberta Fusaro

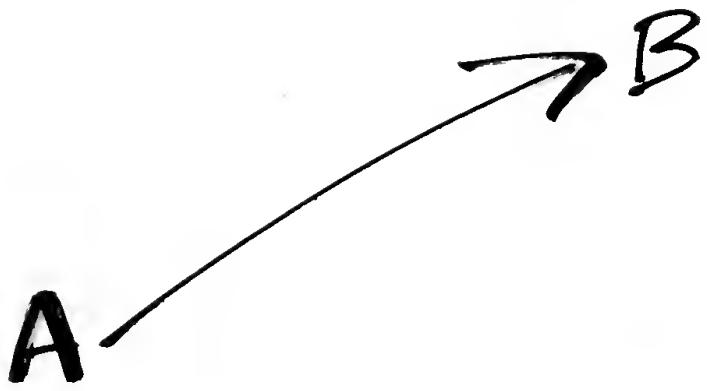
CUSTOMER INQUIRIES are a necessary evil.

Answering them by E-mail and over the phone takes a lot of time and effort — especially in a business such as mortgage lending, where there are tons of variables and usually only a 60-day period between the application and the closing date, said Jack Rodgers, president of American Finance & Investment, Inc. (AFI), a Plantation, Fla.-based online lender.

Still, there are basically a finite number of questions home buyers can ask and a finite number of answers to give them, said Sean Marsh, vice president of sales and marketing at Access National Mortgage, Inc., a discount mortgage provider in Wilmington, Mass.

Both mortgage companies are

Automated service, page 44



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User at work at Specialty Minerals' Montana talc operations

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By Roberta Fusaro

CUSTOMER INQUIRIES are a necessary evil.

Answering them by E-mail and over the phone takes a lot of time and effort — especially in a business such as mortgage lending, where there are tons of variables and usually only a 60-day period between the application and the closing date, said Jack Rodgers, president of American Finance & Investment, Inc. (AFI), a Plantation, Fla.-based online lender.

Still, there are basically a finite number of questions home buyers can ask and a finite number of answers to give them, said Sean Marsh, vice president of sales and marketing at Access National Mortgage, Inc., a discount mortgage provider in Wilmington, Mass.

Both mortgage companies are

Automated service, page 44

Automated service

CONTINUED FROM PAGE 43

counting on World Wide Web-based auto-response technology from Novato, Calif.-based Brightware, Inc. to more efficiently dole out those answers and boost sales.

Rodgers said AFI employees, who used to have to deal with both telephone and E-mail customer inquiries, found that they couldn't type fast enough to keep up with the volume.

The online lender funds about $60 million worth of loans per month and gets about 75,000 unique hits per month, he said.

Now Web site visitors can get loan information almost instantly. The numbers can be updated in the Brightware database on the fly, and any preset text can be edited easily, Rodgers said.

He wouldn't disclose finances but said AFI's immediate goal was a 40% return on its investment in Brightware — and it achieved that in less than a year.

Access isn't using an auto-response tool now but is installing Brightware 2.0 — which was released last month with a new interactive Advice agent — to answer the bulk of its customer E-mail. Marsh said he hopes the software will help Access penetrate a much larger market without having to add to its customer service staff; the company operates in 15 states currently and hopes to go nationwide by fall.

The Brightware server application automatically collects queries made on a Web site and, most of the time, composes a response. The rest of the time, it routes the query to a predefined third party.

A user fills out a request form on the Web site, citing the information he needs. That message is pulled into an in-box on the messaging server. Brightware's Answer agent retrieves it, reads it, determines the intent of the question through natural-language processing and matches keywords with a response template and information database that the company has created. Brightware then sends the information to the user via E-mail.

JERRY MARKATOS

Access National Mortgage's Sean Marsh hopes Brightware's Web-based software will help his company serve more customers

NOT ALONE

Other products in this space include those from Adante in Carlsbad, Calif.; Mustang Software, Inc. in Bakersfield, Calif.; and Kana Communications, Inc. in Palo Alto, Calif.

David Cooperstein, an analyst at Forrester Research, Inc. in Cambridge, Mass., said auto-response systems such as Brightware are best suited for and most often used in financial services and retail areas. Those businesses have the most direct relations with customers and often need to capitalize on customer connections and transactions more quickly, he said.

He noted that the first wave of electronic-commerce sites made it tough for users to talk to companies.

"The best you could do would be to search the Web site for phone numbers and other contact information and then switch to the telephone," Cooperstein said.

But there has been a push as of late: The market for Web-based customer service applications will grow from $11 million today to $650 million by 2002, according to Forrester.

Brightware 2.0 costs up to $190,000 for a perpetual license. It works with most standard E-mail systems. □

XML

CONTINUED FROM PAGE 43

Since the World Wide Web Consortium endorsed the first XML standard earlier this year, various industries — including chemicals, health care and financial services — have been working to develop their own standards so they can share data.

The 200,000-subscriber *Wall Street Journal Interactive Edition* is finding early uses for XML, with a prototype of its customized stock results service. The site lets subscribers set up their own stock portfolios, with results delivered to them in a static HTML page; requests to change the arrangement of data must be executed on the server, said Alan Karben, associate director for interactive development. With the XML prototypes, the changes can be implemented more quickly by script on the client side.

"When you ship XML [to the client], you retain the same document smarts you have on the back end," Karben said.

On the vendor side, some companies already are including XML in new products and updates.

IBM will include XML in its WebSphere product later this year, and it has already shipped versions of Lotus ESuite and its TeamConnection components repository product with XML. IBM also offers a Java parser for XML. XML needs to be parsed, and a script, often written in Java or JavaScript, is needed to tell a browser what to do with a parsed XML document.

TEAM STANDARD

IBM has joined with several other companies — including Oracle Corp., Unisys Corp. and Sybase, Inc. — to propose a standard for sharing programming data over the Web called XMI. The XMI proposal will go before the Object Management Group on July 27.

Microsoft Corp., meanwhile, will include XML in Office 2000, and its Internet Explorer 4.0 includes XML support. Microsoft officials said the company will enhance support in Version 5.0 of the browser.

But XML is still an immature technology, advocates acknowledged.

"What we're seeing at the moment is a lot of proof-of-concept prototypes," said David Webber, a software consultant at XML-EDI Group, a vendor organization that looks at ways to use XML.

XML advocates warn that complicated implementations could be frustrating and pointless. "XML is really quite simple, and that's the point," said Craig Hayman, program director of repository strategy at IBM. □

Orders

CONTINUED FROM PAGE 43

Specialty Minerals also plans to use the new technology to centralize order management at its administrative offices in Bethlehem, Pa.

The company's four main plants currently process their own orders because Bethlehem-based sales and customer service workers don't have access to inventory balances and production schedules at each facility.

"If we have to call up to get the information, the customers might as well call the plant themselves," Hamme said. But that isn't very efficient.

More flexible software was one of the top technology priorities cited in a mini-survey of 15 large manufacturers done earlier this year by Plant-Wide Research Group in North Billerica, Mass.

"The customer is king," said Bill McSpadden, Plant-Wide Research's president. And being able to easily adapt systems to individual needs "beats the heck out of a salesman telling someone, 'Oh yeah, we can do that,' and then running back and saying you have to customize your code," he added.

Specialty Minerals started testing the order management piece of Marcam's Protean 3.0 software this month and plans to go live later this year at plants in Canaan, Conn., and Adams, Mass. A companywide rollout is due to be finished by the middle of next year.

The integrated manufacturing and order management software also is expected to make analyzing sales and profits down to the level of individual customers or product lines less of a tractor pull for users at Specialty Minerals.

Sales and marketing analysts will be able to pull data straight out of Protean rather than having to assemble it from multiple applications. "We can get the information now, but it's the equivalent of jumping through hoops," said Jay Janson, the company's market development manager. □

NEW PRODUCTS

ENTERSOFT SYSTEMS CORP. has announced LifeKeeper 2.0, middleware that can join 16 Windows NT servers in a high-availability cluster.

The Bridgewater, N.J., company said the software lets groups of servers back up each other. When a failure occurs, servers still in operation restore network interfaces, data and applications. Access to network printers also is maintained.

Pricing starts at $1,500 per server.

Entersoft Systems
(908) 575-9100
www.entersoft.com

ENFISH TECHNOLOGY, INC. has announced Enfish Tracker Pro, data tracking software for Windows 98, Windows 95 and Windows NT.

The Pasadena, Calif., company said the software incorporates the capabilities of a search engine, a database and a file system.

It creates one place to go for data regardless of location or application and automatically sorts new data into user-specified categories.

The software costs $79.95.

Enfish Technology
(626) 660-2300
www.enfish.com

INTEGRATED COMPUTER SOLUTIONS, INC. has announced Builder Xcessory Pro 5.0, a software suite for deploying Unix applications to Windows and the Internet.

According to the Cambridge, Mass.-based company, developers can use the software to recycle C and C++ components on multiple platforms.

The software costs $6,495.

ICS
(617) 621-0060
www.ics.com

Drumbeat

CONTINUED FROM PAGE 43

On the surface, Drumbeat 2.0 looks similar to many other visual editors. It uses drag and drop, contextual menus and dialog boxes to avoid writing code.

But when it comes time to access data, Drumbeat 2.0 stands apart. Connecting to a database is nearly as simple as designing a page.

Using the product's DataForm Wizard, in 30 minutes I created an Active Server Pages (ASP)-based World Wide Web site that could retrieve and update records in an existing Access database. I simply pointed to the proper data source, selected fields and built a query using the point-and-click Query Wizard. Drumbeat quickly built the relevant pages, creating fields, buttons and pages on the fly.

And Drumbeat's page layout tools let you dress things up a bit afterward.

PRODUCT REVIEW

▶ *Drumbeat 2.0*

ELEMENTAL SOFTWARE
Carlsbad, Calif.
www.drumbeat.com

OVERALL GRADE A

Price: $699

Pros: Easy to create Web pages and connect them to databases without coding.

Cons: Full feature set available only in an all-Microsoft Web environment

CROSS-PLATFORM

Drumbeat shows off its muscle best in an all-Microsoft Web environment, but it doesn't ignore other platforms.

When creating a site, you can choose browser support for generic HTML, Netscape Navigator 3.x or any 4.0 browser. You also can select whether you will use an ASP-compatible server.

Once you choose your platform, Drumbeat will show only those options that apply.

For instance, right-click on a graphic when developing for Navigator 3.0, and the contextual menu will contain only options that the browser supports, such as opening a new browser window or submitting a form. Do the same while developing for Internet Explorer 4.0, and you get a far greater list of functions, including making the graphic glow or dim when the mouse pointer moves over it.

Drumbeat also lets you build SmartPages, which automatically match the pages' features to the capabilities of a user's browser.

Drumbeat determines which browser the user has (either via client- or server-side scripting) and sends down the appropriate pages.

Like Fusion, Drumbeat saves pages in an intermediate format and converts them to HTML during the publishing stage. As a result, you can't directly edit Drumbeat's HTML, though you can add your own hand-honed code via the Passthrough HTML feature. You can also link to and publish externally created pages.

Many tools let you connect your databases to the Web, but Drumbeat's comprehensive set of well-integrated tools gives it a distinct advantage.

It's so easy, practically any computer-literate user will be able to get a database-driven site up and running. □

Lindquist is a reviewer in Moss Beach, Calif. He can be reached at chris@linqink.com.

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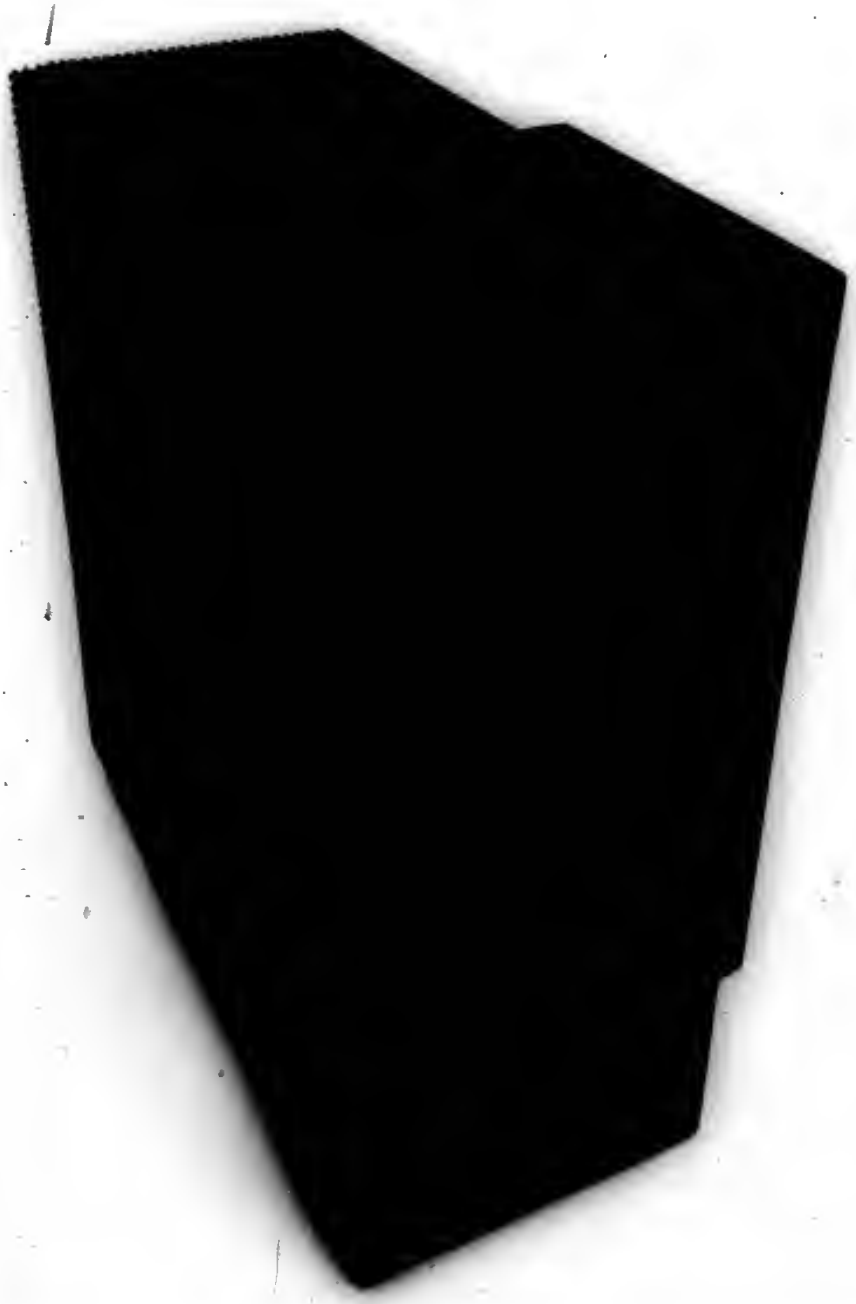

IBM.

intel inside pentium II

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Briefs

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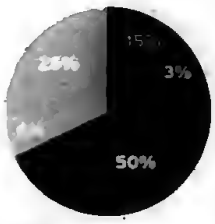


Base: Survey of 163 IS managers responsible for an average of 3,500 users with host access

Source: MSI Consulting Group, Seattle

Compaq cuts prices

Compaq Computer Corp. last week slashed Armada notebook prices by up to 28%.

The Houston-based computer maker cut the price of the Armada 4130T from $1,489 to $1,099; the 4160T Slimline from $2,149 to $1,599; the Armada 7380-DMT from $2,089 to $1,499; and the Armada 7730DMT from $2,479 to $1,799.

HP expands line

Hewlett-Packard Co. last week announced that it expanded its Kayak Windows NT workstation line with a dual-processor, 400-MHz Pentium-based Kayak XU workstation. Prices start at $6,999.

Dell revamps servers

Dell Computer Corp. last week announced that it is launching two new servers aimed at workgroup and file-and-print applications.

The PowerEdge, dubbed the 6100 and the 6300, features Pentium II processors and are priced from $3,999.

Dell also announced it has revamped its World Wide Web sales site to feature faster download times and more side-by-side comparisons of products.

Desktop VMS phaseout rankles users

▸ *Move is forcing costly migrations, they say*

By Jaikumar Vijayan

COMPAQ COMPUTER CORP.'s plan to drop desktop OpenVMS after the year 2000 is running into a maelstrom of protest from a section of the OpenVMS community.

DIGITAL WORKSTATIONS

Several users in OpenVMS Usenet newsgroups claimed the move will mean a costly and forced workstation migration to Windows NT.

Discontinuing desktop OpenVMS will also rob software vendors and the user community of a cost-efficient and reliable development platform, they said.

"If Compaq discontinues VMS [on the desktop], I don't think a lot of people will go back to Compaq," warned Blakely Williford, a systems administrator at Fuller Brush Co. in Great Bend, Kan. "Compaq would have burned the loyal customer user base that VMS created for Digital."

Fears about Compaq's plans for desktop OpenVMS have been stirring up a flurry of activity in the newsgroups. Anxious users are trying to rally support for ideas that range from a mass letter-writing campaign to taking up a billboard outside Compaq headquarters advertising user support for the platform.

"If Compaq stops supporting VMS on workstations, they will reduce their development base to practically nothing," said Shane Smith, a senior technical consultant at Health Net in Woodland Hills, Calif.

Desktop VMS, page 48

Where to go for Windows 98 upgrade questions at some major vendors

Vendor	Dell	Gateway	Compaq
Web site	*www.dell.com/g8upgrade*	*www.gatewayaooo.com*	*www.compaq.com*
Details	Most incompatibilities listed; downloads and walk-through instructions available	Incompatibilities listed; CD-ROM kit available for detailed upgrade instructions	Problems listed are searchable; more detailed information for certification listed at Microsoft site

Win 98 installation, testing tricky

By April Jacobs

IF THERE WERE ANY lessons to be learned from the mayhem that surrounded the question of upgrading to Windows 98 during the past two weeks, it is that IS teams need to test configurations before unleashing them on end users.

And although most corporate information systems managers never would consider doing otherwise, analysts said the task can get tricky when IS staff deal with an environment that isn't standardized.

That's because many of the incompatibility issues that surround Windows 98 involve drivers for external peripherals, such as modems, PC Card devices, network interface cards and printers [CW, July 13].

Steven Epstein, vice president of NewsLink Services at Simon & Schuster, Inc. in New York, hasn't installed Windows 98 yet, but he isn't surprised that people are having problems. "When was the last time you read the user's manual before installing software?" Epstein said. "People think the operating system is just another piece of software and don't do any testing until something goes wrong."

Fortunately, corporate desktops aren't shipping with Windows 98 installed yet.

PLAN OF ACTION

Users need to catalog all the installed peripherals using the hardware compatibility library or PC 98 specifications, both of which are located on Microsoft Corp.'s World Wide Web site. They also should refer to the latest information available on PC makers' Web sites.

And even if all the user's hardware is listed as compatible, there still could be driver or other software conflicts — even among compatible devices — as a result of version differences, corrupt or extraneous registry entries and manually overridden settings that Windows 98 doesn't expect.

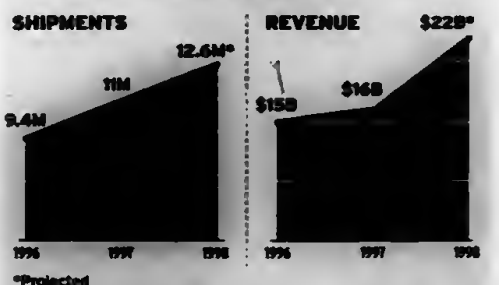
"Not all these desktops can be upgraded as elegantly as Microsoft would like to say," said John Dunkle, an analyst at Workgroup Strategic Services, Inc. in Portsmouth, N.H.

On older desktops, users may need to write their own drivers. "But then they have to go through the testing process, so I'm going to have to stand in line and wait," Dunkle said.

Microsoft has a set of disks that companies can use to test their own drivers. The actual testing includes loading the upgrade and putting it through the motions with the software and peripherals that will be used. □

Snapshot

Worldwide PC sales are still strong despite the economic downturn in Asian markets



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Source: Consumer Electronics Manufacturers Association, part of the Electronic Industries Alliance in Arlington, Va.; International Data Corp., Framingham, Mass.

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IBM

MMX intel inside pentium II

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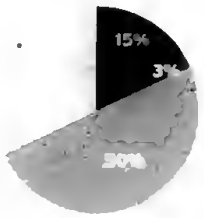

- Java
- ActiveX
- Java and ActiveX
- Neither
- Not sure

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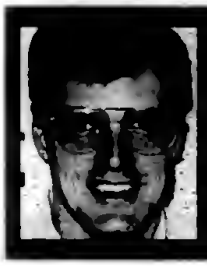

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– ROB YOUNG
BDP INTERNATIONAL

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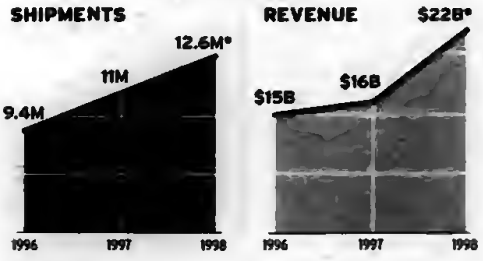

*Projected

Source: Consumer Electronics Manufacturers Association, part of the Electronic Industries Alliance in Arlington, Va., International Data Corp., Framingham, Mass.

Desktop VMS phaseout

CONTINUED FROM PAGE 47

"With no software available . . . VMS will wither away to a handful of sites who can't afford to migrate off it," Smith said.

The outcry comes at a time when Compaq is trying to convince jittery customers that its purchase of Digital Equipment Corp. won't result in major technology disruptions.

The Houston-based vendor has repeatedly stressed that it will invest in, support and enhance key Digital technologies such as Alpha, Digital Unix and OpenVMS at the high end.

But in the OpenVMS workstation space, Compaq, like Digital before it, is making no secret of its plans to quickly wind down support for the VMS platform.

Part of the reasoning has to do with the fact that apart from the support expressed in the newsgroups, many users are moving away from VMS to NT for cost and ease-of-use reasons on the desktop, some users said.

"Desktop VMS does not have the same kind of strategic importance as VMS servers do," said Rich Marcello, vice president of OpenVMS software at Compaq. "Our focus on the desktop is Windows 98 and NT. We have been saying for some time that the strategic importance of OpenVMS is at the high end."

GOING TO HIGH END

"VMS is a shrinking base . . . and like IBM's MVS, it is becoming a high-end proposition" for most users, said Rob Young, VMS cluster manager at BDP International, a freight management company in Philadelphia.

Some users have long recommended that Digital and now Compaq drop OpenVMS workstation prices to near-Windows NT levels to generate mass sales, said Terry Shannon, editor of "Shannon Knows DEC," a newsletter in Ashland, Mass.

Compaq has done the numbers and figured that [desktop] OpenVMS is just not a good value proposition."
– Terry Shannon, "Shannon Knows DEC"

"But Compaq has done the numbers and figured that [desktop] OpenVMS is just not a good value proposition," he said.

Compaq will support OpenVMS on the current generation of Alpha workstations, called EV56, through 2000.

After that, the company will offer migration packages to Windows NT and an upgrade option to next-generation EV6 OpenVMS servers, Marcello said.

There are an estimated 150,000 to 175,000 VMS workstations worldwide, or about 35% to 40% of the 434,000 OpenVMS systems installed.

A majority of them are in scientific, engineering and educational establishments, according to analysts.

Though it has never been a mass-volume platform like Windows, the 20-year-old OpenVMS platform has long enjoyed a reputation for rock-solid reliability and performance. □

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Don't be late! Simulated Simulating to test your 2000-readiness can be good practice, Ed Yourdon says. Page 52

Managing

CRAZY CORRELATIONS

When you're hiring career changers, past lives may predict future success in IT

BY KATHLEEN MELYMUKA

JANE AUSTEN, SIGMUND FREUD, WOLFGANG AMADEUS MOZART AND NOAH apply for two programming positions at your company. Each has left a successful career and recently graduated from a good programming course. WHOM DO YOU HIRE?

According to technical trainers, Mozart and Noah are your best bets.

The aptitudes that draw a person to technology, they say, are often the same ones that led him to a previous career that, on the surface at least, couldn't be more different.

"Many people could have gone into computer science, but their teachers told them they were really talented in music," says Alan McNabb, director of the Arts and Science Placement Office at Indiana University's career development center in Bloomington. "If they had been told they could go far in computer science, they could have been there."

ORCHESTRATING SUCCESS

It seems that musical aptitude is one of the strongest predictors of success in a technical position. "The highest scores on the admissions test and best performers have been people with a background in music," says Terry Skwarek, director of the Institute for Professional Development in the School of Computer Science, Telecommunications and Information Systems at DePaul University in Chicago.

Crazy correlations, page 50

CRAZYCORRELATIONS

CONTINUED FROM PAGE 49

Others who deal with career changers agree. "I've had the same experience," McNabb says. He says he finds that students who begin in the performing arts program frequently migrate to computer science.

In the trenches, the correlation is equally strong.

But why?

"The common thread probably is that both are very structured environments," says Galen H. Graham, president of DeVry Institute of Technology in Columbus, Ohio.

"There seems to be a high correlation between musical ability and reasoning skills," Skwarek says. "It has to do with recognizing and manipulating patterns. That happens in music and in programming."

TIME AND SPACE

Some say the real correlation has less to do with discrete aptitudes than with the way technical people think: They favor spatial/temporal reasoning, or the ability to visualize. Mozart, who composed entire symphonies in his head, clearly excelled at that skill. And Albert Einstein, who was known to think about time and space, was also known to favor the violin.

The ability to do spatial/temporal reasoning is important in a lot of areas, says Gordon L. Shaw, professor emeritus of physics at the University of California at Irvine and co-discoverer of the "Mozart Effect," which demonstrates that exposure to classical music enhances reasoning ability.

"It makes sense that if you're good at one of these higher brain functions that involve the spatial/temporal aspect, you're going to be good at the others," Shaw says. "To construct a good program, you want to be able to see the consequences in your head, not just do line by line of the code. You have to be able to totally visualize it."

Howard Rosenbaum, assistant professor at the School of Library and Information Science at Indiana University, tells of a professional bass player who became fascinated with computers. "He told me that sometimes when he sits down at a computer, he can visualize what he's doing as if it were a piece of music," he says.

FROM ARK TO OBJECT ORIENTATION

That's where Noah comes in. He was able to visualize a highly complex construction project based on pretty scant numerical data.

That skill, too, works in information technology. Rosenbaum has another student who was a construction foreman.

"He has an interesting ability to visualize a project — where it all fits in a blueprint he carries in his head," Rosenbaum says. "He looks at programming as having a structure. He starts by drawing blueprints and sketches just as he would if he were putting up a building."

The correlation is equally apparent on the job. "One of my best employees, now a senior program analyst, was a construction worker," says Jim Crumb, chief operating officer at World Media Co. in Omaha. "Companies should go out and start interviewing carpenters."

The ability to visualize facilitates another aptitude common among technical people: a knack for solving mental puzzles. Mathematicians who move to IT say their success depends more on their ability to solve mental puzzles than to do complex calculations.

But before you send Freud packing, consider this: Rosenbaum says success in technology may ultimately depend on a person's ability to relate technology to his previous career. "I think it's a matter of being able to find a workable metaphor," he says. "Many who are successful have done that." He cites graphic artists who think of pixels on a screen as oils on a canvas.

THE METAPHOR'S THE THING

"When they bring a familiar metaphor from another area and see its application, the mystique is removed, and computing work becomes just another tool in their creative tool kit," Rosenbaum says. "They have an interesting conceptual framework to bring to the experience rather than just struggling with it line by line."

Finally, even novelist Austen may not have chosen the wrong second career. IT workers have to perform in the real world, where not every programmer gets to visualize and build a masterpiece from beginning to end.

"Sure, a guy who does music can see how [a whole system] fits together," says Don Goodman, vice president of business development at Chubb Computer Services, an IT training firm in Parsippany, N.J.

"But if you're working on year 2000 and you want to see the whole picture, guess what? You're not going to be able to. And if you're working with end users, you'd better be articulate," he says.

So look to former lives to predict technical aptitude — but remember: It takes more than aptitude to succeed, and some IT jobs are less technical than others.

Mozart and Noah are shoe-ins for the programming slots, but based on her communications skills, Austen could be a good choice for a relationship manager or an internal consultant.

And they say Freud has a way with metaphors. □

Melymuka is Computerworld's *senior editor, management.*

CAREER CHANGERS

A look at five people who switched careers to IT

DANIEL LARIVIERE
Andersen Consulting
Ottawa
FORMER LIFE: construction worker
CURRENT LIFE: IT consultant, two years
KEY SKILL: visualization

WHY THE SWITCH? "When you're building a house, you make the drawings, read the blueprints, pay attention to details. I'm doing a lot of that now without the physical part of construction: planning, flow charting, details. You scope it out almost the same way."

CATHY BOCK
Household International, Inc.
Prospect Heights, Ill.
FORMER LIFE: chemist.
CURRENT LIFE: senior business analyst, 10 years
KEY SKILL: mental puzzles

WHY THE SWITCH? "I have a strong math background, but I'm not doing calculations; it's more the skills of being able to solve story problems. Users will tell you a story, and buried in the story is the information you need, and you have to be able to pull it out."

BILL SHACKELFORD
Russell Martin & Associates. (IT trainers)
Chicago
FORMER LIFE: musician, linguist
CURRENT LIFE: senior learning facilitator; president, Shackelford & Associates, 15 years
KEY SKILLS: pattern recognition, spatial/temporal skills

WHY THE SWITCH? "Music uses some of the same kinds of thought processing as many programming languages: pattern recognition, formation of patterns, repetition of patterns. There's the same kind of recognition in language. I was drawn to exotic languages, and what could be more exotic than programming languages?"

JEFF BLACKMORE
Indiana University
Bloomington
Former life: landscape construction
CURRENT LIFE: IT graduate student, second year
KEY SKILLS: visualization, use of metaphor

WHY THE SWITCH? "When I build something, I look at the landscape, cut up the timber, put together the joints and, when it's all set, pour the dirt in. Now, I take data and give it structure. The joints are the relationships, the timber is the structure, the dirt is the data. If the dirt comes out between the joints, I know the design isn't right."

JANET SYSLO
ConAgra Corp.
Omaha
FORMER LIFE: accounting manager
CURRENT LIFE: programmer, one year
KEY SKILLS: structure, visualization

WHY THE SWITCH? "Accountants and programmers have to be able to compartmentalize things and break them into small steps and put them in order and tick them off and make sure each part is handled properly."

RESOURCES: FOR IS MANAGERS

CONFERENCES

Is summer leaving you thirsting for more information technology knowledge? How does a trip to California sound? Here are four key conferences that will take place in August and September.

▸**The 1998 Training IT Conference & Expo.** Aug. 17 to 20 at The Fairmont Hotel in San Francisco.

The conference focuses on the IT training field, from delivering training today to learning about tomorrow's training trends.

Cost: $995. Contact: Influent Technology Group, (888) 333-9088; fax: (508) 872-1153; E-mail: Training-IT@influent.com; World Wide Web address: *www.influent.com.*

▸**WebSec '98.** a conference and expo on Web security, Aug. 18 to 20 at the Hyatt Regency in San Francisco.

Is there such s thing as "too much" security? You'll find plenty of security-related topics here among six tracks, including Cryptography & Electronic Commerce and Tools & Techniques.

Cost: $1,095. Contact: MIS Training Institute, (508) 879-7999; fax: (508) 872-1153; E-mail: mis@misti.com; Web address: *www.misti.com.*

▸**Support Services Conference & Expo – Fall '98.** Sept. 9 to 11 at San Francisco's Moscone Center.

A key event for customer service — both internal and external — and technical support professionals. There are more than 120 conference sessions divided among five learning tracks.

Cost: $1,095 to $1,295. Contact: Support Services Conference & Expo, (781) 433-1650; fax: (781) 449-1413; Web address: *www.ssce.com.*

▸**Internet Commerce Expo.** Sept. 22 to 25 at the Los Angeles Convention Center.

Keep current with developments in Internet commerce, corporate intranets and extranets. There are plenty of opportunities to talk with companies and visionaries that are the driving forces behind Internet business.

Cost: $395 to $1,395. Contact: Internet Commerce Expo (part of International Data Group, parent company of *Computerworld*), (800) 667-4423; Web address: *www.idg.com/ice.*□

MORE ONLINE

For a complete list of upcoming IT conferences and seminars, visit *Computerworld* online.

www.computerworld.com/more

JARGON JUDGE

"Point-of-sale device"

The day my mother comes home from the mall and exclaims, "That clerk had no idea how to operate that darned point-of-sale device!" is the day I will be forced to admit my parents have entered the Information Age.

ANNE MCCRORY

Fortunately, neither of those things seems in any danger of happening.

That's because as far as my mother — and most Americans — are concerned, store clerks operate cash registers. If you told them they aren't called that anymore, you'd get quite a puzzled look.

Of course, the register has come s long way. Aided by bar codes on products, s scanning laser beam and all kinds of software, it's often nothing less than a complete inventory and replenishment system. And at the end of the day, it can tell management what items customers from s given town purchased or how many people bought only sale items.

Nonetheless, calling it a point-of-sale (POS) device isn't the way to convey that. Yet that's what people in the business do — it's POS, pronounced P-O-S, a noun. But POS is a modifier — in this context, it describes a machine. So using it as a noun is incorrect. (It looks abhorrent, too, like the result of a dreaded medical test.)

Of course, people who call it a POS device are technically correct. The place where money changes hands is certainly the "point" where the "sale" takes place. The problem here is the sin of omission: POS terminals aren't just located at the point of sale. For example, the customer-service desk handles returns as well as sales. "Cash register" might be outdated, but POS is incomplete,

Finally, we have to look st our language. If we banish "cash register," why stop there? What about cashiers? What about personnel who "ring up" our orders? We didn't change the verb we use with the telephone — dial — when push buttons came along; we don't automatically need to rechristen machines just because they've been enhanced.

A name can be an integral part of a legacy, too. Consider that the original cash register patent — to a Dayton, Ohio, restaurateur named James Ritty in 1879 — led to the formation of National Cash Register, which today still exists as NCR (which still makes cash registers, albeit modern ones). And as parent AT&T learned when it tried to rename the company in 1994, there's no substitute for a name that's synonymous with a product. (It spun off the unit and gave it back its name in 1996.) In fact, that's called "branding."

And that's a very '90s concept. So let's stick with cash register, too. If it ain't broke, there's no reason to fix it.□

Does any high-tech jargon have you steamed? Tell Anne McCrory, former Computerworld copy desk chief and now assistant sections editor. Her Internet address is anne_mccrory@cw.com.

BOOKSHELF

If you were to compare the definitions of about 25 words in a modern dictionary with a 60-year-old edition, you might find a few noticeable differences.

The computer industry, as we all know, changes more rapidly. AMACOM Books in New York recently published the eighth edition of Alan Freedman's **The Computer Glossary** (512 pages; $29.95 paperback), and we couldn't help but compare it with 1989's fourth edition.

- The fourth edition contained 3,500 entries; the eighth, more than 6,000.
- The fourth edition doesn't have entries for total cost of ownership, gigabyte, Java or Internet.
- The fourth edition contained four definitions for Microsoft Corp. or its products. There are 10 in the eighth edition.
- The '89 entry for "client/server" reads: "In a communications network, the client is the requesting machine and the server is the supplying machine." The '98 edition defines "client/server," "client/server architecture," "client/server network" and "client/server protocol."

We've come a long way.□

SIMULATE TO TEST HOW READY YOU ARE FOR THE YEAR 2000

Year 2000 project managers, here's a scenario you're likely to face: You're summoned to a board of directors meeting and asked one simple question: "How bad will it be if we don't make it?"

ED YOURDON

Your natural tendency is to reply, "I'm highly confident that we are going to make it. I updated the project schedule just this morning, and it shows . . ."

But an impatient director interrupts. "What I want to know is, what happens if your estimates are wrong and your year 2000 project isn't finished by Dec. 31, 1999. How bad will it be?"

"That's difficult to answer," you respond. "We have several hundred suppliers and vendors plus the phone company, the electric company and our banks. The situation is so complex that we can't predict what would happen if some of those organizations fall behind on their year 2000 projects."

The director won't be satisfied. "Let's ignore the outside influences for the moment," he says. "If our order-entry system crashes on Jan. 3, how bad will that be for us? And if that affects our accounts receivable system, how long before we run out of cash?"

That boardroom example is a classic case for running a simulation of a potential year 2000 business scenario. In the most simplistic case, it's one that the chief financial officer could accomplish with a spreadsheet. If the company's order-entry system breaks down, for example, it's fairly easy to calculate the impact on revenue: No invoices will be generated, and the only cash receipts will be those associated with invoices that are in the pipeline when the system crashed. If the accounts receivable system is down, too, then incoming cash is reduced to a trickle in an easily predictable period of time. Chances are that the CFO can predict, with considerable accuracy, when the company will run out of cash and be forced to close its doors.

COMPLEXITIES ABOUND

Unfortunately, things aren't quite that simple and obvious with the year 2000 situation. The reason? Everything is connected to everything else in a complex set of interdependencies. A simple failure in system A could render database X inaccessible; that could make it impossible to run system B, which transmits a file of transactions to system C via a vendor-supported network, which updates database Z. And it may be the failure with database Z two weeks later that renders the order-entry system inoperable.

Even that example is unrealistically trivial. The typical organization has hundreds, if not thousands, of systems, each with complex interfaces and dependencies. In the ideal case, every one of those systems is undergoing its own year 2000 remediation, and in the best of all cases, they'll all be finished well in advance of the ultimate deadline of Dec. 31, 1999. But what if one project is late? What if a key vendor doesn't provide the promised year 2000-compliant upgrade? Where is the weak link in the chain, and what are the consequences of a failure?

TOOLS CAN HELP

There are many ways to model such a situation by using general-purpose simulation tools such as Ithink from High Performance Systems, Inc. in Hanover, N.H.; Dynamo from Pugh-Roberts Associates in Cambridge, Mass.; Extend from Imagine That in San Jose, Calif.; or PowerSim from PowerSim Corp. in Norway (U.S. headquarters in Herndon, Va.).

But with less than 18 months to finish all of their year 2000 work, most organizations don't have the time, resources or patience to set up a research team to build a year 2000 contingency-planning model. But it turns out that you don't have to build one from scratch. You can build a fairly sophisticated model much more quickly by using an intriguing product called Think 2000 from Thinking Tools, Inc. in Monterey, Calif. Think 2000 lets the year 2000 project team describe resources (hardware units, system software, application systems and so on), dependencies among resources and plans for repairing the resources. For example: "Our plan calls for three projects, one of which repaired all hardware devices by June 30, 1998, the second of which will repair all system software by Sept. 30, 1998, and the third of which will repair all of our application systems by Dec. 31, 1998."

Think 2000 is relatively expensive, but because millions of dollars are at stake, if not the very survival of the organization, I think it's well worth investigating. One way or another, you're going to need that kind of simulation capability — for it's only a matter of time before you get an urgent phone call from the board of directors. Be prepared. □

Yourdon heads the Year 2000 Advisory Service at Cutter Consortium in Arlington, Mass. His most recent book is Time Bomb 2000. *He can be reached via E-mail at ed@yourdon.com.*

f.y.i.

Survey: Technology tops CEOs' concerns

Your CEO may finally be getting it.

Information technology and data management are among the top issues on the minds of key business leaders, according to a global survey of CEOs.

The study, conducted by management consulting firm A. T. Kearney, found that those twin technology issues have displaced other concerns. For example, corporate growth, which ranked No. 2 in a similar survey in 1996, fell to sixth place in the new study.

"There's no doubt that senior business executives believe the intelligent use of technology enables them to compete and operate more effectively," said Doug Aldrich, a vice president who leads Kearney's Strategic Information Technology Practice.

Kearney sought the views of CEOs and senior business executives at 213 companies in 11 industries in more than 20 countries. According to the survey:

- Nine out of 10 cited IT as essential in every way or very important for their business's future success.
- One-third cited the use of new technologies as the top critical success factor for the future, followed by improved product quality and service.
- Fifty-eight percent identified loss of competitive advantage as the main consequence of not keeping pace with IT; 13% predicted bankruptcy as a possible outcome.
- Nearly 40% indicated they haven't successfully measured IT's impact.
- Since 1996, the percentage of CEOs and senior executives who say they have a "very good" working knowledge of the technologies used in their organizations has nearly doubled, and more than half — up from 40% in 1996 — spend more than 10% of their time trying to keep abreast of technologies that might affect their companies.

Review Center

Tools for the virtual office

MOBILE MANIA

IT WAS A FEW MONTHS AGO that I first noticed the latest version of the mobile professional. He had a 3Com Corp. PalmPilot tucked in his shirt pocket (for E-mail and planning), a cellular phone hanging from his belt (for quick calls and voice mail) and, right next to the cell phone, a two-way pager, complete with the hard plastic protective case. Oh, and what did this symbol of the '90s have hanging from his arm? A leather computer bag, of course, complete with a notebook PC and all the wiring and accessories that try to unite the diverse systems and link him to the home office. If this guy fell overboard with all that iron, he would need two life preservers.

A lot of us dream of the day when you really can take it with you — your office, that is. In the months since we first planned this feature, I've experimented with a variety of tools beyond the basic notebooks our staff brings on road trips — systems that let us carry out a good portion of our daily office tasks on the road.

For example, I worked with 3Com's Palm III (my second attempt to understand the fascination with the handheld organizer/computer/communicator/something). Some of my co-workers swear by the Palm; I ended up swearing at it. Entering data was a pain, the documentation was thin, the display was weak, and the sync feature sank. The Palm III and the others in the string of handheld devices I've tried, including Windows CE systems, don't help me take my office on the road, just that part of my desk where I scribble reminders and phone numbers. Fortunately, Palm promoters have backed away from pitching the Palm as a notebook replacement. So, I'll acknowledge that it probably is good at what it was designed for — organization and communication — and say that I'm a long way from finding a handheld to cherish.

Shifting to the far end of the portability (and price) spectrum, I started to work with a Gateway Solo 9100 LS. With a 266-MHz Pentium II processor, 64M bytes of RAM, combined digital video disc (DVD) and floppy diskette drive module and a 14.1-in. active matrix screen, it's representative of the extreme high-end in mobile power computing. Of course, at 8.2 pounds, it balances 22 Palms, and its $3,899 cost is almost 10 times the base price of a Palm III.

The Solo is probably overkill for my needs — word processing, online editing, browsing and E-mail — but if I had to err either way, I'd rather have its capabilities. I couldn't tell how much credit was due to the 266-MHz CPU and how much to the program-loading enhancements in Windows 98, but launching WordPerfect by opening a document took less than 3 seconds. Also, it really does seem to be a mobile desktop, even down to the feel of the keyboard. By the way, yes, you can watch DVD movies if you have a couple of hours to kill. Just be patient because the display lags the sound, giving you a bit of a spaghetti western feel.

What can you take away from this, besides my own preferences? I hope it's an understanding of the wide range of mobile technology and how varied users can be in their likes and dislikes. Rather than list a bunch of technologies in the following pages, we've profiled four organizations that have made commitments to supporting the virtual office. In each case, the message is clear: Companies are taking their mobile workers more seriously.

It's been about a decade since companies such as AT&T broke new ground by launching "office without walls" strategies. The idea was that sales representatives had to be out in the field to do their jobs right, not confined by the four walls of a corporate cell simply because that's where their data was. Today, sales representatives and consultants pack their office in a leather bag, and the IT group has to figure out how to equip and support them.

In the pages that follow, writers Alice LaPlante and Amy Malloy examine implementation and deployment strategies by four companies that are heavily dependent on mobile technology: Saab Cars USA, Inc., General Accident Insurance Co., Astra Pharmaceutical Partnership Ltd. and American Express Co. The profiles show that supporting the mobile workforce has become incredibly complex. Yet it also has allowed some of these companies to re-examine how they do business. □

— James Connolly,
technology evaluations editor

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MOBILE MANIA

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WHEN THE ROAD IS INCREASINGLY WELL-TRAVELED

SAAB USA connects the dots virtually and creates a seamless supply chain

By Alice LaPlante

WHEN LOREN MORRIS joined Saab Cars USA, Inc. in April 1996, he was amazed at the degree of automation Saab provided mobile field workers like himself. But he was just seeing the early stages of a sophisticated remote access strategy Saab plans to have complete by year's end.

As district service sales and parts manager at Saab, Morris is in charge of all Saab independent dealerships in a four-state district encompassing Wisconsin, Minnesota and the Dakotas. Morris' "official" office is in Minnesota, at his home in Marine on St. Croix. But he's on the road visiting dealers at least 75% of his working life. To complicate matters, Saab USA's national office is in Atlanta, but Morris reports to a supervisor at his district's regional office in San Francisco. To say remote access is important to Morris is perhaps the understatement of the year. "I couldn't live without it," he says.

Although Morris has spent his entire professional life in the automotive industry and the past 11 years on the road in various field sales and support positions, he'd never before worked for a company that didn't "drown [him] in paper." Morris' previous job had been with a leading Japanese automaker, but until he joined the Saab team, he had never been offered anything but bare-bones technology support.

ANN STATES/SAAB

Loren Morris is on the road most of his

"It was a bloody mess," he recalls of employers' attempts to give him even the most rudimentary dial-up capabilities. So the Windows laptop Saab provided, which gave him access to E-mail as well as the ability to send and receive files from any hotel room in his region, was a major step forward, as were the many incremental applications and accessories Saab has gradually put in his hands.

For example, last year Morris was issued a CD-ROM player for his laptop that gave him instant access to Saab's massive parts and service library. "It takes me about three minutes to answer just about any question a dealer might have," he says. "Before, it would take hours or days to comb through all the paper manuals."

But today, Morris gloats as he considers the technology that will be in his hands by the end of the year. Called the Intranet-Based Retailer Information System (CW, July 13), the technology will enable him to get immediate online snapshots of all sales, parts, warranty and financial data that affects dealerships in his district. "Since JJ has taken over, we are moving ahead by quantum leaps," Morris says.

"JJ" is John Jacobs, Saab's retailer and field information manager. Based in Atlanta, Jacobs is responsible for all technology that supports Saab remote workers and affiliated retail dealers. Currently, that includes approximately 90 Saab employees and 250-plus retailers spread throughout three geographic regions, each of which comprises 24 districts.

Jacobs has several major remote access initiatives under way, which he hopes to have completed by year's end. The one he and Morris are most excited about is a complete overhaul of Saab's dealer information system. Currently, each dealer uses a DOS-based system that allows it to order cars and parts and submit warranty claims but otherwise provides for very little interaction. "It's very elementary," Jacobs says. "And it's not year 2000-compliant."

That's the bad news. The good news is that Jacobs was able to start with a clean slate. Using Lotus Notes, Domino and Java, the new system will offer dealers a satellite link between local Windows 95 systems that runs Netscape and the legacy AS/400 systems in Atlanta. World Wide Web pages will be distributed via the satellite link, providing dealers with up-to-the-minute data on everything from current sales to inventory status, parts availability and warranty claims.

"We looked at frame relay, but it was three times the cost of satellite," Jacobs says of his choice of communications technology. Now, instead of dialing in to the Saab modem bank in Atlanta, each dealer will have a continuous online, high-bandwidth connection to a plethora of rich information systems.

"The beautiful thing is that the system refreshes itself continuously," Morris says. For example, the dealer doesn't have to wait for the next update issued via paper reports. Also, the system immediately verifies items such as parts number, price and availability. If the dealer has made a mistake in entering a parts number or if a part is out of stock, the system will catch it on the spot.

Morris, as district manager, will be able to log in to the Saab intranet using the satellite link from any dealer he visits or through phone lines. In either case, he will be able to get to all internal Saab intranet applications as well as to dealership information for his area.

Morris says he believes the technology will make him and his dealers much more productive. But Jacobs says the real benefits will be reaped in more strategic ways. When you advance from merely moving data back and forth to actually sharing what you know, "you acquire not only information, but knowledge. Then, if you're lucky, you might even get to wisdom," he says. □

LaPlante is a freelance writer in Woodside, Calif.

IT'S NO ACCIDENT

GENERAL ACCIDENT INSURANCE sets out to reduce processing errors by automating claims process

By Alice LaPlante

THE LIFE OF AN automobile insurance claims adjuster has never been an easy one. After all, few people are in a happy frame of mind when their car gets damaged or stolen. Even automotive repair and body shops, which stand to profit by others' misfortunes, can get contentious when their fees are disputed or negotiated down by a conscientious insurance company representative.

But thanks to mobile technologies employed by General Accident Insurance Co. in Philadelphia, much of the pain and human error have gone out of processing auto claims. More than $3 million worth of error to be precise.

"We thought we'd see a cost savings of about $1 million," says Bill Jenkins, chief information officer at General Accident. "But we ended up with an annual benefit of $3.1 million."

In the past, claims adjusters were given "assignments," or paper-based instructions, to inspect a damaged car. The adjuster traveled to the location of the car and manually prepared a damage appraisal estimate by filling out multiple-page paper forms. All parts, prices and labor charges needed to fix the car in question were looked up in voluminous *Auto Crash Guide* manuals, and the totals were determined using a handheld calculator.

To give you an idea of the amount of information in those guides, says David Phillion, manager of the advanced technology group at General Accident, "they filled up the backseat of a car." The guides were updated four times a year, which meant that paper inserts were shipped to each claims adjuster. And, Phillion says, there was no guarantee that a particular adjuster had correctly filed the most recent updates in his copy of the guide.

Moreover, if the appraisal was done at the automotive repair site, the claims adjuster could negotiate with the shop to make sure labor and parts estimates were in sync. But if the appraisal was done at the policyholder's home, or at the crash site, "you might have to go back later and recalculate the numbers and redo the entire document," says Mike Franklin, team leader of the claims automation group. That meant more time wasted. Completed appraisals — which existed only on paper at that point — had to be processed at the local claims office, which meant adjusters had to drive to the office, where they also were required to prepare productivity reports on their activities for branch managers to review.

Automating the field adjustment process lets General Accident Insurance write checks on the spot, according to the team of David Phillion, Bill Jenkins, Pat Reese, Vince Ferrari and Mike Franklin (from left)

All that has changed. Claims adjusters were given IBM ThinkPads with CD-ROMs and modems that run EZest Auto Appraisal software from CCC Information Services, Inc. in Chicago. All "notices of loss" filed by car owners now are distributed via E-mail to the appraisers' individual mailboxes — no more paper reports to be picked up at the office. The *Auto Crash Guide* is also available via CD-ROM. When the appraiser gets to the site, he simply specifies the car's make and model and goes through the vehicle entering all damages in the system. Parts and labor costs are automatically retrieved and calculated. "If you're inspecting a 1995 Buick Park Avenue, the program will automatically figure out all parts and labor estimates for that car," says Pat Rees, a senior analyst in General Accident's auto claims group.

One major advantage is that the system catches errors humans might make. For example, sometimes appraisers mistakenly order an incorrect part for a specific car model or incorrectly tally total costs, says Ben Ferrari, a team leader in advanced technology. Combined with the $50,000 annual cost savings from not distributing *Auto Crash Guide* manuals, the total annual savings for General Accident is 1.2% of total aggregate losses, or a whopping $3.1 million.

Best of all from the policyholder's point of view, the check for repairs often can be cut immediately by the appraiser. "Our goal is to pay as many claims as possible on the spot," Rees says. □

COMMANDING A MOBILE ARMY

With 8,500 mobile workers scattered throughout North America, **AMERICAN EXPRESS** makes sure remote access isn't a battlefield

By Alice LaPlante

TALK ABOUT NEEDING to think strategically about mobile workers.

At the heart of American Express Co. financial services business, its IDS division based in Minneapolis, is its army of 8,500 "advisers" who work out of remote field offices as well as home offices and who sell a broad range of financial products and services to clients throughout North America.

An increasingly lucrative business for Amex is financial planning: working with individuals and families to develop long-range financial goals for retirement, education, illness, disability or estate planning.

Until five years ago, financial planning was a paper-intensive business. Advisers would meet with prospective clients; typically at the client's home or business location, gather pertinent data on client assets, liabilities and goals; and then report back to the local regional office. There, a clerk would enter the information and upload it to the legacy mainframe-based application in Minneapolis. Weeks later, a rudimentary financial plan would be mailed to the adviser, who would go back, meet with the client and begin to tailor the plan more precisely.

"This would go on for three or four iterations, depending on the client," recalls Scott Bourret, manager of remote access services at Amex.

Today, all that is changed. Thanks to a new remote application called

AdvisorLink, an "umbrella" Windows 95-based platform encompasses a wide range of applications specifically designed for field advisers. Under this umbrella, new functionality is continuously added either via

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MOBILE MANIA

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WHEN THE ROAD IS INCREASINGLY WELL-TRAVELED

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When Loren Morris joined Saab Cars USA, Inc. in April 1996, he was amazed at the degree of automation Saab provided mobile field workers like himself. But he was just seeing the early stages of a sophisticated remote access strategy Saab plans to have complete by year's end.

As district service sales and parts manager at Saab, Morris is in charge of all Saab independent dealerships in a four-state district encompassing Wisconsin, Minnesota and the Dakotas. Morris' "official" office is in Minnesota, at his home in Marine on St. Croix. But he's on the road visiting dealers at least 75% of his working life. To complicate matters, Saab USA's national office is in Atlanta, but Morris reports to a supervisor at his district's regional office in San Francisco. To say remote access is important to Morris is perhaps the understatement of the year. "I couldn't live without it," he says.

Although Morris has spent his entire professional life in the automotive industry and the past 11 years on the road in various field sales and support positions, he'd never before worked for a company that didn't "drown [him] in paper." Morris' previous job had been with a leading Japanese automaker, but until he joined the Saab team, he had never been offered anything but bare-bones technology support.

"It was a bloody mess," he recalls of employers' attempts to give him even the most rudimentary dial-up capabilities. So the Windows laptop Saab provided, which gave him access to E-mail as well as the ability to send and receive files from any hotel room in his region, was a major step forward, as were the many incremental applications and accessories Saab has gradually put in his hands.

For example, last year Morris was issued a CD-ROM player for his laptop that gave him instant access to Saab's massive parts and service library. "It takes me about three minutes to answer just about any question a dealer might have," he says. "Before, it would take hours or days to comb through all the paper manuals."

But today, Morris gloats as he considers the technology that will be in his hands by the end of the year. Called the Intranet-Based Retailer Information System (CW, July 13), the technology will enable him to get immediate online snapshots of all sales, parts, warranty and financial data that affects dealerships in his district. "Since JJ has taken over, we are moving ahead by quantum leaps," Morris says.

"JJ" is John Jacobs, Saab's retailer and field information manager. Based in Atlanta, Jacobs is responsible for all technology that supports Saab remote workers and affiliated retail dealers. Currently, that includes approximately 90 Saab employees and 250-plus retailers spread throughout three geographic regions, each of which comprises 24 districts.

Jacobs has several major remote access initiatives under way, which he hopes to have completed by year's end. The one he and Morris are most excited about is a complete overhaul of Saab's dealer information system. Currently, each dealer uses a DOS-based system that allows it to order cars and parts and submit warranty claims but otherwise provides for very little interaction. "It's very elementary," Jacobs says. "And it's not year 2000-compliant."

That's the bad news. The good news is that Jacobs was able to start with a clean slate. Using Lotus Notes, Domino and Java, the new system will offer dealers a satellite link between local Windows 95 systems that runs Netscape and the legacy AS/400 systems in Atlanta. World Wide Web pages will be distributed via the satellite link, providing dealers with up-to-the-minute data on everything from current sales to inventory status, parts availability and warranty claims.

"We looked at frame relay, but it was three times the cost of satellite," Jacobs says of his choice of communications technology. Now, instead of dialing in to the Saab modem bank in Atlanta, each dealer will have a continuous online, high-bandwidth connection to a plethora of rich information systems.

"The beautiful thing is that the system refreshes itself continuously," Morris says. For example, the dealer doesn't have to wait for the next update issued via paper reports. Also, the system immediately verifies items such as parts number, price and availability. If the dealer has made a mistake in entering a parts number or if a part is out of stock, the system will catch it on the spot.

Morris, as district manager, will be able to log in to the Saab intranet using the satellite link from any dealer he visits or through phone lines. In either case, he will be able to get to all internal Saab intranet applications as well as to dealership information for his area.

Morris says he believes the technology will make him and his dealers much more productive. But Jacobs says the real benefits will be reaped in more strategic ways. When you advance from merely moving data back and forth to actually sharing what you know, "you acquire not only information, but knowledge. Then, if you're lucky, you might even get to wisdom," he says. □

Loren Morris is on the road 75% of his workweek.

LaPlante is a freelance writer in Woodside, Calif.

IT'S NO ACCIDENT

GENERAL ACCIDENT INSURANCE sets out to reduce processing errors by automating claims process

By Alice LaPlante

THE LIFE OF AN automobile insurance claims adjuster has never been an easy one. After all, few people are in a happy frame of mind when their car gets damaged or stolen. Even automotive repair and body shops, which stand to profit by others' misfortunes, can get contentious when their fees are disputed or negotiated down by a conscientious insurance company representative.

But thanks to mobile technologies employed by General Accident Insurance Co. in Philadelphia, much of the pain and human error have gone out of processing auto claims. More than $3 million worth of error to be precise.

"We thought we'd see a cost savings of about $1 million," says Bill Jenkins, chief information officer at General Accident. "But we ended up with an annual benefit of $3.1 million."

In the past, claims adjusters were given "assignments," or paper-based instructions, to inspect a damaged car. The adjuster traveled to the location of the car and manually prepared a damage appraisal estimate by filling out multiple-page paper forms. All parts, prices and labor charges needed to fix the car in question were looked up in voluminous *Auto Crash Guide* manuals, and the totals were determined using a handheld calculator.

To give you an idea of the amount of information in those guides, says David Phillion, manager of the advanced technology group at General Accident, "they filled up the backseat of a car." The guides were updated four times a year, which meant that paper inserts were shipped to each claims adjuster. And, Phillion says, there was no guarantee that a particular adjuster had correctly filed the most recent updates in his copy of the guide.

Moreover, if the appraisal was done at the automotive repair site, the claims adjuster could negotiate with the shop to make sure labor and parts estimates were in sync. But if the appraisal was done at the policyholder's home, or at the crash site, "you might have to go back later and recalculate the numbers and redo the entire document," says Mike Franklin, team leader of the claims automation group. That meant more time wasted. Completed appraisals — which existed only on paper at that point — had to be processed at the local claims office, which meant adjusters had to drive to the office, where they also were required to prepare productivity reports on their activities for branch managers to review.

Automating the field adjustment process lets General Accident Insurance write checks on the spot, according to the team of David Phillion, Bill Jenkins, Pat Reese, Vince Ferrari and Mike Franklin (from left)

All that has changed. Claims adjusters were given IBM ThinkPads with CD-ROMs and modems that run EZest Auto Appraisal software from CCC Information Services, Inc. in Chicago. All "notices of loss" filed by car owners now are distributed via E-mail to the appraisers' individual mailboxes — no more paper reports to be picked up at the office. The *Auto Crash Guide* is also available via CD-ROM. When the appraiser gets to the site, he simply specifies the car's make and model and goes through the vehicle entering all damages in the system. Parts and labor costs are automatically retrieved and calculated. "If you're inspecting a 1995 Buick Park Avenue, the program will automatically figure out all parts and labor estimates for that car," says Pat Rees, a senior analyst in General Accident's auto claims group.

One major advantage is that the system catches errors humans might make. For example, sometimes appraisers mistakenly order an incorrect part for a specific car model or incorrectly tally total costs, says Ben Ferrari, a team leader in advanced technology. Combined with the $50,000 annual cost savings from not distributing *Auto Crash Guide* manuals, the total annual savings for General Accident is 1.2% of total aggregate losses, or a whopping $3.1 million.

Best of all from the policyholder's point of view, the check for repairs often can be cut immediately by the appraiser. "Our goal is to pay as many claims as possible on the spot," Rees says. □

COMMANDING A MOBILE ARMY

With 8,500 mobile workers scattered throughout North America, **AMERICAN EXPRESS** makes sure remote access isn't a battlefield

By Alice LaPlante

TALK ABOUT NEEDING to think strategically about mobile workers.

At the heart of American Express Co. financial services business, its IDS division based in Minneapolis, is its army of 8,500 "advisers" who work out of remote field offices as well as home offices and who sell a broad range of financial products and services to clients throughout North America.

An increasingly lucrative business for Amex is financial planning: working with individuals and families to develop long-range financial goals for retirement, education, illness, disability or estate planning.

Until five years ago, financial planning was a paper-intensive business. Advisers would meet with prospective clients; typically at the client's home or business location, gather pertinent data on client assets, liabilities and goals; and then report back to the local regional office. There, a clerk would enter the information and upload it to the legacy mainframe-based application in Minneapolis. Weeks later, a rudimentary financial plan would be mailed to the adviser, who would go back, meet with the client and begin to tailor the plan more precisely.

"This would go on for three or four iterations, depending on the client," recalls Scott Bourret, manager of remote access services at Amex.

Today, all that is changed. Thanks to a new remote application called

AdvisorLink, an "umbrella" Windows 95-based platform encompasses a wide range of applications specifically designed for field advisers. Under this umbrella, new functionality is continuously added either via

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DOCTORS' ORDERS

Sales reps from ASTRA PHARMACEUTICAL are making their visits virtually painless

By Amy Malloy

Astra Pharmaceutical Partnership Ltd. is leveraging technology to create a new image for the pharmaceutical sales representative. No longer does a representative walk into a doctor's office or hospital weighed down with product samples and a laptop.

Instead, the representative carries around an Apple Computer Inc. Newton and can order samples that are delivered in two or three days. Almost 1,400 employees at the Wayne, Pa., division of Astra (formerly Astra Merck) use the tools.

Along with a Newton and an IBM ThinkPad, the company also gives its sales representatives, called pharmaceutical specialists, off-the-shelf and custom applications, a cellular phone, a fax machine, a second phone line and soon, a car adapter for the laptop.

The company purchased Newtons to capture doctor signatures for prescription drugs in an effort to simplify the selling process for both customer and sales representative.

Astra found Newton's large screen size, signature recognition capability, battery life, processor speed and memory capability to be superior to other personal digital assistants, explains Tom Schwenger, Astra project manager for NorthStar, a new application.

The ThinkPads are another key piece of equipment. Astra switched to IBM in 1995, after having used Compaq laptops since 1992. Decision-makers felt IBM's vision better matched Astra's needs. The systems IBM was building at the time offered stereo sound and CD-ROMs. And they were modular, which helped with upgrades and repairs, says Kevin Smith, director of the technology support center.

But the sales staff had problems dialing in from the ThinkPads, so the company upgraded the laptops with 28.8K bit/sec. modems from Microcom, Inc., now part of Compaq Computer Corp. Also, a Shiva Corp. LAN Rover replaced the Novell, Inc. NetWare remote node the company used. Both reliability and performance greatly improved, Smith says.

For someone in the field, Astra's mobile strategy means well-targeted sales calls. Using Compass, a customized software sales force automation application on the laptop, Tommy Martin, Astra pharmaceutical specialist for Southern Rhode Island, can walk into a doctor's office knowing that that doctor likes to play golf and prefers to meet with sales representatives on Wednesdays.

"Compass really dictates where I go. It is the software I use most frequently," Martin says.

The company decided to build a custom application because nothing on the market offered enough information-sharing capabilities, Schwenger says.

Compass has a PowerBuilder front end, runs Oracle on the back end and uses an engine on the laptop. Smith says it's similar to Lotus Notes in concept. Sales representatives can share information about Astra clients. Information gets sent to and from a central host database.

Many sales representatives say the laptop isn't an efficient tool for managing and capturing customer information because of its size and boot-up time — they often get limited time with doctors. "Having to wait four minutes for Windows 95 to boot up is not really acceptable," Schwenger says.

A representative usually gets between 30 seconds and two minutes with a customer, unless the visit is a scheduled lunch or other event, Martin says.

One thing Astra has learned is that its employees play a crucial role in planning, so it goes to end users before creating a new application. Julie Diehl can attest to that. A developmental specialist on the sales force, she's involved in a simulated field environment project to test a new application before it's rolled out companywide.

The new application, code-named NorthStar — a modified version of Compass on the Newton — will be available next month. Sales representatives can tap the information they need to get through a workday, such as a doctor's sample history, addresses and phone numbers and doctor profile information.

"Compass on the Newton is a godsend," Martin says. "Sometimes we sit in a waiting room for 15 or 20 minutes. Instead of picking up a *People* magazine, I can spend the time reviewing information on the Newton."

NorthStar should save each representative from two to five hours per week, Diehl says. The time savings will come from more efficient use of data and not having to reboot the laptop or worry about its battery power, she says.□

Malloy is project editor, Computerworld Magazines Group.

MOBILE ARMY

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One such application designed by Amex was deployed late last year. More than a piece of software, it represents a convergence of internal "best practice" processes and technology that the firm believes gives its advisers a significant competitive edge over other financial services firms, says Mike O'Keefe, vice president of adviser business systems at Amex.

That internal proprietary adviser service software, written in Smalltalk, resides on advisers' laptops and processes client plans locally. Although client data is still uploaded to legacy systems, the turnaround time for completing sophisticated financial plans has been cut from weeks to days.

The adviser still does the initial data gathering of goals, income, assets and debt from the client, O'Keefe says. But he or she then uses the new software to create customized plans that specifically tie the client's long- and short-term goals to existing and future assets. Rather than the boilerplate results that came from the previous legacy application, the new software gives the adviser the opportunity to tailor a plan more precisely. Then, when the plan is complete, the adviser meets with the client, validates the results and does "what if" calculations to ensure that the client is happy with the results. At any time, the client can request adjustments, and the adviser can make them on the spot. "Our processing time for sophisticated financial plans has been shortened dramatically," Pallum says.

Amex takes its mobile workers seriously. So much so that it has created a unique department dedicated to understanding their needs. In fact, O'Keefe commands a group of 100 business analysts completely focused on that initiative.

"Now, we're developing systems truly tailored for field advisers," says Bourret, who has the larger responsibility of making sure the Amex infrastructure can meet the needs of all remote workers.

Among other challenges, Bourret is trying to move toward a single sign-on, single-password process for remote access.□

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In Depth

<YourCompanyNameHere>sucks.com

By Leslie Goff

When an angry consumer slams your organization online, you want to slam back. But there may not be much you can do about it

Drew Faber was irked. When he signed up at a Bally Total Fitness health club, he had negotiated to upgrade his plan so he could use other clubs in the chain operated by Los Angeles-based Bally Total Fitness Holding Corp. when he traveled. But when he cut a check for the upgrade, just before a trip to Chicago, the club simply tacked a few extra months on to his membership. Bally told him his plan didn't qualify him to use its Chicago club.

Faber, a freelance photographer, already maintained two World Wide Web sites to promote his work. He wasted no time launching a third — one that promoted his complaints about the chain. He called it Bally Total Fitness Sucks *(www.compupix.com/ballysucks/)*. He topped the page with the health club's logo, across which he scrawled the word "sucks."

"I thought a Web site would be the easiest way to get a response from Bally's," Faber says. "If I just wrote letters, they would just ignore them, but it wouldn't be easy to ignore the Web site."

In vast numbers, consumers are taking their grievances about companies, products and services to the Web, and they aren't being coy about it. GTE Sucks; The I Hate McDonald's Page; Toys R Us Sucks; I Hate Bill Gates!!! I Hate Microsoft!!! I Hate Windows!!!; The Official Packard-Bell Hate Page; and Why America Online Sucks are just a few of the rancorous sites started by unhappy consumers.

In fact, a recent Yahoo search for the words "hate" and "sucks" yielded 628 hits.

Sites that track consumer opinions make up almost a third of the hits — and those are just the ones registered with Yahoo. Public relations consultants estimate the true number of such rogue sites could be close to 1,000.

Consumer hate sites include well-intentioned grassroots efforts, organized activist sites run by ad hoc watchdog groups, benign first-person diatribes and truly venomous, malicious attacks.

Nike, Inc. knows the spectrum. The company is targeted by at least eight different sites, which mainly criticize the Beaverton, Ore., company for alleged

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labor abuses in Southeast Asia. They run the gamut, from The Official Internet AntiNike Site *(www.harborside.com/home/s/stevenm/public_html/antinike.html)*, a first-person essay by Steven Myers, a 40-year-old union laborer in southwest Oregon, to Just Don't Do It: Nike vs. the University of Michigan *(www.personal.umich.edu/~lormand/nike/)*, an activist site operated by a campus group.

Myers' site features a cartoon of a boy urinating on the famous Nike "swoosh," which the site calls a "swooshtika," and makes unsupported claims about the company's business practices.

Myers defends his site's content by saying he links to other sites that document his claims, such as the Just Don't Do It site, which includes sources — including reports from respected news organizations — for its allegations.

Nike hasn't contacted any of the sites, says Scott Reames, Nike's communications manager, but he and members of his staff occasionally monitor their content.

OVER THE EDGE

"Some of them are so completely over the edge, in our opinion, that it seems pointless to even try to counterpoint what they say," Reames says. "Some are actually very well thought out and have offered us a different point of view."

The quandary for targeted companies is figuring out how far they can go to protect their image without fueling the fire already raging at the sites.

"Avoid 'testosterosis,' or the urge to hit someone in the face because they are doing something you don't like," says Jim Lukaszewski, president of The Lukaszewski Group in White Plains, N.Y., which advises Fortune 100 companies on how to deal with public relations crises. "It's a free country, and the Web is completely unregulated. Don't get angry and think about doing foolish things."

But because consumer hate sites upset corporate employees and boards of directors alike, there's a natural tendency to get lawyers involved. That can be a mistake.

Those who operate hate sites adore posting cease-and-desist letters they receive from corporate attorneys. Such letters also validate their fight for the cause, whatever they perceive that to be, and they can use them to cast yet another negative spotlight on the company. They revel in the attention.

A company has legal recourse only when the unauthorized use of its trademarks, brand names or other intellectual property is apt to be confusing to the public.

And consumers who maintain rogue Web sites argue that no reasonable person would be confused that Bally Sucks is maintained or supported by Bally Total Fitness.

So just how much recourse does a company actually have on the Web, where everyone has the equivalent of a Gutenberg press?

"There's a lack of laws or precedent on the 'net, and we are investigating what we can do because there's a lot of stuff out there that we are displeased about," says Bryan Holmberg, a public relations specialist at Wal-Mart Stores, Inc. in Bentonville, Ark. "Due to newness of the Web and these sites, each has to be investigated on a case-by-case basis to see if it crosses the line."

HANDS TIED

So the retail chain has little room to maneuver against the Wal-Mart Sucks Web site *(www.walmartsucks.com)*, even though the home page features a photograph of a Wal-Mart outlet altered to look like "Anal-Mart." "That falls under freedom of expression, unfortunately, partly because a consumer couldn't be confused that Wal-Mart was doing it," Holmberg says.

Wal-Mart Sucks is maintained by Richard Hatch, an unemployed toy collector in Bangor, Maine, who says he launched his site after he was banned from the Wal-Mart store there for allegedly threatening an employee.

Hatch says he merely made a flippant remark to another customer about a store employee. He had complained to store managers for months that employees were snapping up the best Hot Wheels and NASCAR collectible toy cars before they hit the shelves.

Hatch, who has amassed some 5,000 Beanie Babies, also fell into a rift with employees at the Toys R Us store in Bangor about similar complaints. He has been banished from there as well. His response: a Web site *(www.toysrussucks.com)*. Toys R Us didn't return calls for this article.

Before a company considers legal action, it should first quantify how much of an impact a site is having on customer behavior, consultant Lukaszewski says. Have customers stopped buying your product because of what's on the site? That should set the strategy for your response.

SLIGHT DECLINE

Sales across most of Nike's lines have fallen off in the U.S., and the whole athletic-gear industry is slumping.

Reames acknowledges that labor-related protests have contributed to the company's slowdown — though he says it's hard to tell how much of the decline is because of Web sites and how much is fallout from other media, but the Web sites help unify the boycott movement, he says.

In response, Nike commissioned a third-party investigation of labor practices in the company's Indonesian factories, and CEO Philip Knight has been making speeches to publicize the results, copies of which Nike posts at its corporate Web site *(www.nikebiz.com)*.

The best strategy for dealing with hate sites is to stay on top of them and address their complaints, says James Alexander, president of EWatch, Inc., a White Plains, N.Y.-based Internet monitoring service.

"If a company solves my problem, why would I keep up the Web site?" he says. "But I've seen cases where a company didn't resolve the problem fast enough, other people start to send in responses, and the sites lived on even after the original problem was resolved."

That's what happened at Faber's Bally Total Fitness Sucks site, which he launched last March. Within a few months, he had heard from scores of other unhappy Bally members, whose complaints and other suggested content he added to the hate site.

If Bally had contacted him right away, Faber says, he probably would have let the site die a quiet death.

But Bally didn't respond until last August. By then, the site had developed a life of its own; today, it boasts more than 300 posts from other members.

Faber accepted a settlement offer from Bally last October and now belongs to another health club. But his Bally saga continues: The company sued him this past February for trademark violations.

LESSONS LEARNED

But the health club chain learned a valuable lesson: It now surfs Faber's site and contacts members who post complaints, says Dave Southern, vice president of public and investor relations at Bally.

To date, he adds, the company has resolved about two-thirds of the issues raised by the site's visitors. For his part, Faber posts the resolutions if customers write back to him.

"We're paid by companies. Having said that, I think the Internet is the best thing that ever happened for consumer affairs," Alexander says.

"I've seen more consumer problems resolved because of these sites than there ever could have been. But it's a company's fiduciary responsibility to protect its intellectual property, its stock price and to make sure that any information that appears in any media is factually accurate," Alexander says. □

Goff is a freelance writer in New York.

THEM'S FIGHTIN' WORDS

The experts contacted for this story gave the following advice to deal with — or not, as the case may be — rogue Web sites:

- **Don't ignore the sites; monitor them. Designate a responsible party in your Web development group, legal department or public relations organization and establish a line of communication among the three departments.**
- **If you can verify that complaints at the site are legitimate, address them.**
- **Resist the impulse to wage a war with the site operator; instead, focus on substance.**
- **Create an area online that presents your side of the story. If you have addressed the concerns voiced at a site, consider linking to it from your own site. That will diminish the effect of the attack.**
- **Keep in mind that any correspondence you send to the site will end up posted on it.**
- **Take action against site operators only when the material meets the guidelines for copyright infringement or is absolutely libelous.**

— Leslie Goff

IT Careers

SINGING *the* IT BLUES

By Fawn Fitter

Earlier this year, a large high-tech company hired Beth Gulas, president of Wellesley, Mass.-based consulting firm WorkForce Management, to assess its management practices and suggest ways to improve them.

What Gulas found shocked her: An astonishing 20% of the information systems department showed signs of clinical depression. It was so bad that "men and women alike were literally in tears when we were talking," Gulas says.

Neither a temporary bout of the blues nor a brief period of extreme unhappiness, depression is a mental illness with physical and emotional symptoms. It covers a range of moods, from low-grade chronic malaise to deep and wrenching anguish, and affects both men and women.

It's nearly as common as a cold. Eleven million Americans — one in every 20 — will have a depressive episode in any given year, according to the U.S. Public Health Service, but people rarely acknowledge it for fear of being seen as crazy, lazy or simply weak-willed.

Depression is no more common in information technology than in other career fields. But experts say it may be harder to spot because so much of IT involves working with computers and not with people. The field tends to attract a larger percentage of introverts, who prefer to work alone and are attracted to jobs that let them do so.

For the employees' part, depression is a double burden: not just the overwhelming symptoms of apathy, anxiety and irritability, but also the stigma of the illness itself. They worry that if they don't seek treatment, they'll be fired, and if they do, they'll be branded unemployable. It's up to enlightened IT employers to fight those fears by seeing depression the same as any other serious illness that might require an employee to take it easy for a while.

At Xerox Corp., for example, numerous IT employees have taken disability leaves because of depression, but few have formally asked for accommodations under the Americans with Disabilities Act (ADA), according to Robert Monastero, head of human resources for information management. It may well be that Xerox employees feel no need to invoke the ADA's protections. If so, the company is handling the issue well, making it a matter of concern but not fear.

In the case of the opening example, when Gulas reported her findings to the client company's senior managers, they decided to set up stress management classes. That allowed IT employees to meet one-on-one with their supervisors to look at their careers in confidence and make any necessary changes to their jobs. "It was really quite remarkable how this company stepped up to the plate," she says.

All employers, not just those with large IT departments, need to be aware that depression is so common as to be a virtual epidemic. Companies should offer resources for employees who suspect they may be suffering from it.

John Hancock Mutual Life Insurance Co. in Boston, known for its vast and progressive array of human resources programs, has an on-site counselor to talk to troubled employees at no cost and refer them to outside help if necessary.

What matters most, says Sandra Colley, corporate director of workforce diversity at John Hancock, is for companies to behave with integrity — not to express empathy at one moment, then accuse the employee of malingering at the next. Just as someone undergoing treatment for cancer wouldn't be expected to perform as though nothing was wrong, someone struggling with depression should be treated the same way. ☐

Fitter is a freelance writer in Boston.

CAREER Watch

Live and learn

More than 30% of corporate training will be delivered by technology by 2002, an increase of more than 100% in a two-year period, according to a recent study by The Corporate University Xchange. The greatest area of growth will be education delivered over corporate intranets, which will account for more than a third of all training delivered via technology. The trend is driven by three major factors:

- The advantage of anytime/anywhere (asynchronous) delivery.
- The ability of overseas employees to share information and market-specific lessons and plot strategies for success.
- The ability to store training content for continual updating and reuse.

New and improved

Campus recruiters can hopefully look forward to an increasingly Internet-savvy flock of information technology graduates. University dormitories are increasingly being wired for Internet access. Some colleges are even wiring off-campus housing so that all students will have Internet access, no matter where they live.

Not so fast, job hunter

A recruiter calls with what seems to be a heavenly opportunity. As a restless IT pro, you've gotten an offer you think is the perfect match. But before making a snap decision based on superficial issues such as pay and location, you owe it to yourself to take time to thoroughly contemplate the offer. Whether it's your first IT job offer or your 10th, Jim Seaton shares some job-hunting "commandments" that will help you keep your emotion at bay so you can make your next move with confidence. See our featured weekly Online IT Careers column at www.computerworld.com/careers.

COOL CAREER SITES

Web sites for good career advice, cheap

BY LESLIE GOFF

CAREER BABE: THE ONLINE CAREER ADVISER

www.careerbabe.com/

Fran Quittel, a career columnist and consultant, takes readers' concerns head-on in her Q&A column at this site. She offers practical advice and can be as coaxing as a grandmother or as hard-hitting as Dr. Laura (albeit, in a gentler tone) as she sees fit. Whichever approach she chooses, her aim is to get people to take responsibility for their strengths, their mistakes and getting on the right path.

The Q&A isn't information systems-specific, but the questions often deal with IS issues, and Quittel knows the business. Another useful interactive feature is What Are You Worth. Fill out a questionnaire about your title, function, years of experience and current salary, and Quittel will let you know whether you should be asking for more money.

The site also links to Quittel's high-tech careers column at the *Computer Currents* magazine site (*www.currents.net/magazine/national/care_index.html*), which isn't interactive but does offer an information technology-specific slant on such career issues as mentoring, work and family, pre-employment tests and more.

GO CERTIFY: THE DOMAIN FOR THE CERTIFIABLE

http://gocertify.com/

Get answers to all of your questions about certification and how it can — and can't — enhance your IS career at this interactive site. A threaded Discussion Board launched in March seems to get a good amount of traffic, and the postings are current. Users have a wide range of experience, and they keep questions and answers short and to the point.

You can also confer live with other IS professionals at Talk City on Wednesdays at 9 p.m. by entering the chat room here. If you want to buy or sell previously owned certification study materials, check out the Certification Swap Shop. And to find information on certification programs by vendor, self-guided study courses, instructor-led courses and more, visit the Resource Center. The Cert News column is updated regularly.

WORKPLACE 2000

www.experienceondemand.com/features/work2000.html

This site has potential, but no one seems to know about it. Most promising is an interactive Workplace 2000 Forum, where users can discuss, via threaded postings, everything from where to find hot jobs to the perils of telecommuting. But most of the postings are from last year. Past visitors posted relevant questions and revealing, honest answers. If it were more current, it would be worth a weekly visit. As it is, check in monthly. A regularly updated collection of articles missing fresh material with reprints from other sources (including *Computerworld*), makes worthwhile reading. □

Goff is a freelance writer in New York.

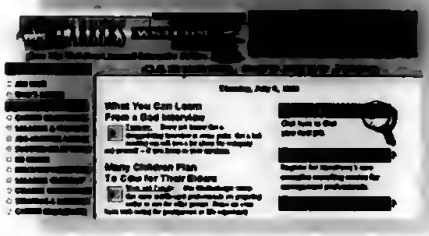
CAREERS, NOT JUST JOBS: THE WALL STREET JOURNAL INTERACTIVE EDITION

www.careers.wsj.com/

From its wealth of articles and columns to the Q&A column by Tony Scott, a job-hunting and career management specialist, this is one of the best career sites on the World Wide Web. It isn't IT-specific, but has plenty to offer IT professionals, tackling everything from entering a new industry to leveraging your experience.

Scott's columns tackle subjects such as job loss, returning to school, interviewing skills and search strategies.

The articles and columns offer information on salaries by profession and region, workplace trends and starting your own business.



BOOKS COOL CAREER

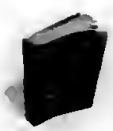
New titles for landing an IT job and searching out a job market

BY ALAN R. EARLS

THE GUIDE TO SILICON VALLEY CAREERS

Compiled and edited by the San Jose Mercury News *business news department*

San Jose Mercury News, *San Jose, Calif., 1998; 498 pages; $19.95; paperback*

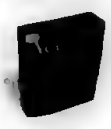


Silicon Valley isn't just a mecca for software developers and entrepreneurs — there's also lots of information systems growth there, even if it is at the very same companies that are blazing the paths in new technology. The bottom line is that there are jobs aplenty, and this guide presents basic facts about more than 400 employers. Prospects range from San Jose Water Co. to start-up firms such as Catalyst Semiconductors, Inc. to giants such as Seagate Technology, Inc.

But that no-nonsense approach limits the value of the book. Entries primarily list addresses and telephone numbers and provide basic information about insurance and 401(k) plan offerings. They don't tell job seekers whether an employer provides a desirable workplace. Even a descriptive sentence or two would make the book more useful, particularly in light of the fact that a significant minority of the listings don't include World Wide Web addresses.

ACE THE TECHNICAL INTERVIEW: 2,000 ANSWERS TO TOUGH QUESTIONS

By Michael Rothstein



The McGraw-Hill Cos., New York, 1998; 497 pages; $24.95; paperback

Superficially, this book seems to be little more than an elaborate cheat sheet. It's actually a great tool for preparing for a technical interview. Rothstein is founder and president of Automated Systems Process Corp., which develops proprietary software for year 2000 conversions. He's also worked at IBM and Motorola, Inc. and acted as a consultant to organizations such as Citibank and Metropolitan Life Insurance Co. So he knows the market.

The chapters are concise and include a range of deep and detailed questions about specific technical areas as well as a discussion of the evaluation process a manager is likely to use. These show real insight. For example, in discussions of technologies that are fairly new, some of the contributors point out the transferable skills a beginner might be expected to bring to an interview. Other useful tips and tidbits abound.

In short, this book is a must-have for the technical job seeker.

RELOSMART: SOFTWARE FOR PEOPLE ON THE MOVE

Right Choice, Inc., South Hamilton, Mass.; $49.45; CD-ROM

Moving from one region to another is not only a complicated and sometimes traumatic activity, but it's also one that can have significant financial consequences. ReloSmart offers a terrific starting point for determining whether a move makes sense. The CD-ROM offers comparisons for 800 cities and towns along with more than 14,000 pieces of data. All large urban areas are included as well as many suburban cities and towns.

The analysis provided takes into account your current situation, including mortgage and housing costs and federal and state taxes, and lets you look at how those numbers will change. Basic statistical data such as rainfall, crime rate and median family income are also provided for each area.

But ReloSmart is far from comprehensive and shouldn't be used as a substitute for deeper analysis. □

Earls is a freelance writer in Franklin, Mass.

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SD Consultant	New York	Consultancy	1 yr exp+	$130K+
ABAP/4	Boston	Logo Partner	1 yr exp+	$90K+
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FI/CO Consultant	Brazil	Logo Partner	2 yrs exp+	$120K+

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PROGRAMMER/ANALYST

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REGIONAL SCOPE
Chicago

The Chicago Seven

Name the IT job or skill, and it's needed in the Windy City. Here are the top seven that *really* cook

PROGRAMMER/ANALYST

Skills wanted: Client/server systems development in C, C++, Visual Basic, PowerBuilder, Java, Unix (Sun Solaris, HP-UX, AIX), relational database software, graphical user interfaces, enterprise resource planning (ERP) software, AS/400, Cobol.

Salary potential: $70,000 to $80,000 for senior developers who have object-oriented programming or World Wide Web application development skills; possible 15% to 20% increase after about a year in the market.

SYSTEMS/NETWORK ADMINISTRATOR

Skills wanted: AS/400, Unix, Windows NT, LAN/WAN experience.

Salary potential: Average of $65,000; possible six-figure pay with the right project or industry experience and bonuses.

NETWORK/TECHNICAL SUPPORT

Skills wanted: Help desk staff with client/server, AS/400 applications experience.

Salary potential: About $45,000, with the built-in opportunity to move into higher-paying systems and network administration positions.

IS/PROJECT MANAGER

Skills wanted: Middle managers for functions such as operations, data security, technical planning, ERP implementation, technical support and help desk; hands-on, hard-core technical experience combined with team leadership ability, across all technology areas.

Salary potential: $75,000 to $120,000 plus bonuses.

DATABASE ADMINISTRATOR/DATA WAREHOUSE TEAM MEMBER

Skills wanted: Oracle.

Salary potential: $70,000 and up for database administrators; $65,000 and up for data warehouse team members.

SYSTEMS ANALYST

Skills wanted: C, C++, object-oriented programming, Unix, AS/400, relational database software.

Salary potential: $65,000 to $75,000 and up.

BUSINESS ANALYST/USER LIAISON

Skills wanted: Client/server systems experience, AS/400, relational database software, top-notch interpersonal skills, customer-service orientation.

Salary potential: $65,000 and up.

Based on ads in the Sunday *Chicago Tribune*, May 31 to June 14, 1998, and interviews with area recruiters and employers

PETER J. SCHULZ/CITY OF CHICAGO

The IT winds are blowing mighty strong in Chicago

By Leslie Goff

Industry is extremely diversified in this Midwestern metro area. The market boasts a plethora of large companies in retail, heath care, financial services, manufacturing, insurance, oil and gas, publishing and food services. Combine the diversity and the volume with an unemployment rate of 3.9%, and you have winds strong enough to knock employers off their feet. Consider: In a two-week period from late May through early June, the Sunday classifieds in the *Chicago Tribune* featured more than 1,400 ads for information technology professionals.

As far as skills go: You name it, someone in Chicago wants it. Salaries are nationally competitive for top jobs. And IT professionals interested in making the Windy City their home can garner three to four solid job offers within a month, says Tom Morgan, vice president of information systems recruiter and software services firm Pencom Systems, Inc. in Chicago.

And contract jobs are abundant. For example, Baxter International, Inc., a Deerfield, Ill., health care firm, relies on contractors for development and implementation projects. The company hires full-time staff for strategic and technical planning, systems and network administration, help desk and operations positions, says Dave Dresden, director of human resources in the information services group.

But despite the tight job market, area employers say they try to avoid relocation hires and bidding wars. Instead, they devise innovative techniques to find and retain local talent.

Walgreen Co., a Chicago-based pharmacy chain, anticipates a 6% IT staff increase by the year 2000 as it adds 600 stores nationwide, says Cyndi Ramsdill, senior technical recruiter. This year, it launched an internal training program that trains non-IS employees for jobs in two critical skills areas: Cobol and AS/400.

Other recruiting tactics include sizable referral rewards; using the corporate World Wide Web site to advertise jobs; monitoring career sites such as The Monster Board and Career Mosaic for qualified candidates; aggressive college recruitment; and internship programs, job fairs and open houses.

But relocation packages are possible. About 30% of Pencom's placements are from outside the area, Morgan says. A senior systems architect hired by a financial services firm received full relocation expenses from New York for a family of four, including two house-hunting trips and temporary living expenses for two months, covering everything from rent to dry cleaning.

That's some breeze, all right. □

Goff is a freelance writer in New York.

FUTURE OUTLOOK

Though the prevailing wisdom says the supply-and-demand gap will abate somewhat come the millennium, Chicago employers aren't buying it. They project the job market will remain tight for at least five more years, if not more, ensuring IS professionals a smooth ride on the El.

"I think a lot of companies are putting projects on hold to deal with year 2000 demands, and then they'll pick those up again," says Dave Dresden, director of human services for IS at Baxter. "I don't see the problem going away and expect that demand will exceed supply for at least another 10 years."

The ratio of jobs available compared with the number of IS graduates coming out of the local colleges is 3 to 1, notes Tammy Napoli, recruitment manager at Walgreen. "That won't change in the near future," she says. "The demand will continue to increase, and recruiting will continually be more of a challenge."

GOT A FRIEND?

If you have a friend working around the Loop, do him a favor and let him refer you for a job. If you're blood, maybe he'll take you out for a big night on the town. Hey, he'll be able to afford it. Top 20 employers such as Baxter and Walgreen reward the rank and file handsomely for referrals that lead to job placements.

Baxter pays employees a whopping $5,000 for referrals who are hired into the IT department, compared with $1,000 for job placements elsewhere in the company.

Walgreen pays $1,500, plus an extra incentive: At the end of the year, all employees who referred new hires are eligible for a drawing for a one-year lease on a Ford Explorer, plus a reserved parking spot to go with it.

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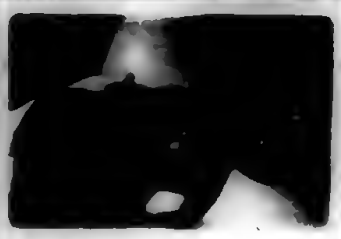

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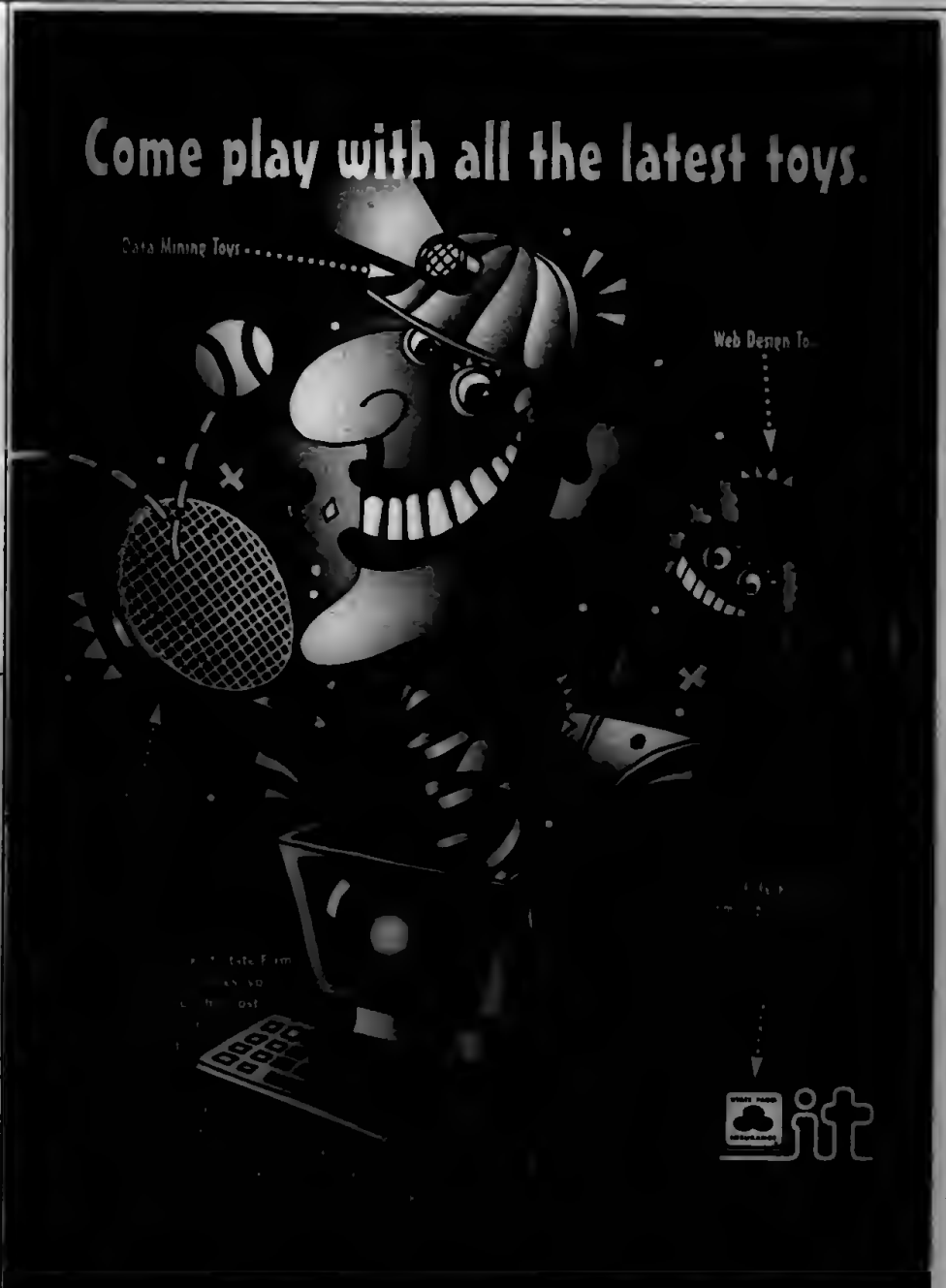

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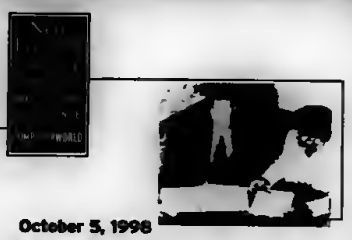

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FALL Campus Edition

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October 31, 1998

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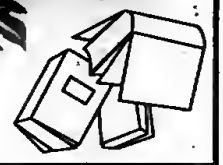

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Programmer Analyst, South Norwalk, CT: Analyze, develop and implement custom made program. Provide technical support. Upgrade system and correct errors to maintain system after implementation. Use Infoflex, AIX, DGX and Advantis Networking for programming. Req'd. 2 yrs exp in job offered. 40 hrs/wk, 9a-6p. Send resumes to Arjay Corporation, 160 South Main Street, South Norwalk, CT 06854. Tel (203)852-1510.

PROGRAMMER-ANALYST needed F/T by Manh. Internet Advertising Agency. Must have 2 yrs experience installing, testing, monitoring, troubleshooting & repairing computer networks using knowl of C++, SPL, Internet protocols and relational databases. Bach. deg in Comp. Engg. or similar major req. Apply by resume to: Director of Business Dvlpmt, DoubleClick, 41 Madison Ave., 32nd Flr., New York, NY 10010.

Software Engineer: Design, implement, test and document real-time embedded application for multi-point video conferencing systems. Develop device drivers, design and implement proprietary communication protocols. Implement standard video conferencing communication protocols. Develop multi threaded applications using multi-tasking preemptive operating systems (OS/2, NT). Utilize C, C++ and assembly. Knowledge of C, C++, Windows NT or OS/2, multi-layer communication protocols (OSI model, HDLC), real time embedded systems/applications, multi-task preemptive operating system internals and the ability to write device drivers. M.S. degree in Computer Engineering AND 2 yrs. exp OR 2 yrs exp as a Software Engineer/Software Analyst. M-F 9-5, 40hrs/wk, $59,500/yr. Send 2 Resumes/Letters of Application to: Job Order # 72194, P.O. Box 8998 Boston, MA 02114

Consultant needed for computer software development and consulting firm located in Duluth, Georgia. Job duties include: Analyze, design, develop, implement, re-engineer, and test computer software applications. Consult on various in-house projects and/or contract basis throughout the United States. Use Oracle, Developer/2000, SQL*FORMS, PRO*C, SQL*PLUS, SQL*MENU, SQL*REPORTWRITER, in Windows and UNIX environment. No education required but applicant must have 4 yrs. exp. in the job duties described above or as a Consultant or Programmer Analyst which includes 4 yrs. designing and developing computer applications with Oracle, SQL*FORMS, SQL*MENU, and SQL*PLUS. B.S. in Computer Science and 2 yrs. exp. in skills listed above also acceptable. 40hrs/wk, 8:00 am - 5:00 pm, Mon-Fri, $52,987/yr. Report to or send 2 resumes to Georgia Department of Labor, Job Order #GA6252564, 1535 Atkinson Rd., Lawrenceville, GA 30243-5801 or the nearest Department of Labor Field Service Office.

Senior Systems Consultant: Responsible for evaluation of new technology, products, & solutions such as Data Warehousing & ODBC drivers; performing analysis on internal architecture of existing group of AS/SET tools like IWS & ODF using Bachman; & provide training at management level & technical level. Responsible for preparation of marketing material for releasing new software products, coordinating pre-sales technical support with reference to RDBMS, Case Tools, & other applications; project management & managing the maintenance of various applications with BPCS (Business Product Control System). Work with Case Tools & Unix on a day to day basis. Perform project management tasks such as project plans, test plans, proposals & software implementation strategy. Provide training for Case Tools, methodologies & client/server systems. Work on HP/UNIX, IBM/AIX operating systems & PC Windows environment. Bachelor's or foreign education equivalent, 4 yrs. in job offered or 4 yrs. as Systems Analyst/Programmer &/or Computer Consultant &/or Systems Analyst &/or Software Engineer &/or Analyst Programmer or any combination thereof. Required work experience must include: (i) 4 yrs. working with Case Tools & Unix on a day to day basis. (ii) 1 yr performing project management tasks such as project plans, test plans, proposals & software implementation strategy. (iii) 6 mos. providing training for Case Tools, methodologies & client/server systems. (iv) 1 yr working on HP/UNIX, IBM/AIX operating systems & PC Windows environment. $70,000/yr, OT pay n/a, 8:30 a.m. to 5:30 p.m., M-F, OT n/a. Must have proof of legal authority to work permanently in the U.S. Send 2 copies of resume to Illinois Department of Employment Security, 401 South State St. 7 North Chicago, IL 60605 ATTN: Janet Aschenbrenner, Reference # V-IL 17492-A. No calls. An employer paid ad.

ENGINEERING. Systems Engineer wanted F/T by Consulting Co. in Chicago. Must have 2 yrs exp. dsgng, dvlpg, imptntg distributed network client server systems using SQL Net, TCP/IP & IPX/SPX network protocols and database applics using Oracle RDBMS & GUI fnns and tools, Oracle Forms & C under Unix envrnmnt. Bachelors in Comp. Elec. or Communications Engg reqd. Respond by resume an HR Dept., Technology Solutions, Inc., 205 N. Michigan, Chicago, IL 60601.

Rotella Capital Management is accepting resumes for Researcher, Technical Trading Systems. This position focuses on developing computerized quantitative investment strategies. Research areas: technical trading systems, portfolio algorithms, derivative pricing methods (programmed in Delphi 3). Candidate must have at least 6 mos. work experience as a software specialist or financial analyst at a major financial institution in development of quantitative investment strategies or derivatives pricing models. Masters degree required in financial engineering or computer science. Salary based on experience. Resume+cover letter to: Rotella Capital Management, Inc. 233 South Wacker Dr., Suite 6300 Chicago, IL 60606 attn: B.Rotella.

COMPUTERWORLD careers

Senior SAP/Management Consultant. Analyzes and re-engineers business software processes in the areas of Finance and Controlling; directs the design, configuration and integration of SAP software for the FI/CO modules and the interfaces with the Logistics modules; plans, develops and reviews project progress; determines programming needs for functional enhancements and writes the functional and technical specifications; provides training for project team; M.S. in Computer Science, Management, 8 yrs. exp. in the job offered or in SAP Project Management; Must have 5 yrs. exp. with SAP FI, CO, AM and PS modules; & yrs. exp. with SAP CO modules and the interfaces with MM and PP; 5 yrs. exp. with intercompany postings/transfers, multi-currency and other issues related to multi-national companies. $80,000/yr. Senior SAP Consultant. Analyzes and re-engineers business software processes of client companies in the software logistics area; directs the design, configuration and integration aspects of SAP R/3 software for the SD and MM modules; plans, develops and reviews project progress; determines programming needs for functional enhancements and writes the functional and technical specifications; provides training for project team. M.S. in Computer Science, Engineering or Math related field; 2 yrs. exp. to the job offered; Must have 2 yrs. exp. in the implementation of SAP R/3 software and SD and MM modules. $80,000/yr. SAP Systems Analyst/Developer. Designs and develops enhancements and interfaces to SAP modules FI/CO and PP/MM using ABAP/4 development workbench and SAPscript. B.S. in Computer Science, Engineering or Math-related field; 2 yrs. exp. in the job offered; Must have 2 yrs. exp. with SAP Software, including FI/CO and MM/PP modules and 2 yrs. exp. with ABAP/4 programming language and SAP and SAPscript; $80,000/yr. Send resumes (no calls please) to Bernhof Consulting (America), Inc. 700 North Water Street, Suite 640, Milwaukee, WI 53202

Programmer Analyst to work at job sites in various unanticipated locations throughout the U.S. Consult with clients to ascertain their programming needs and analyze user requirements and procedures to reach program objects. Design, development, programming and implementation of financial and logistics applications using IBM AS/400. Use of RPG II, RPG/400, UNIX, COBOL and Novell Netware. Reqs. Bachelors in Comp. Sci., Comp. Eng., Economics, Electrical or Electronic Eng Math or its foreign equivalent in educational and/or experience. 2 yrs in the job offered or 2 yrs. in a related occupation such as Systems Analyst, Programmer Analyst or Software Engineer. Related exp. must include development and maintenance of financial and logistics applications on IBM AS/400. $42,000/yr. 8:00 AM-5:00 PM. 40 hrs. per week. Must have proof of legal authority to work in the United States. Send your resume to the Iowa Workforce Center, 2740 S. 17th St. Clinton, Iowa 52732-7060. Please refer to Job Order IA1100745. Employer paid Ad.

Software Engineer needed F/T for Houston Info Tech Co. Must have 6 mos exp dsgng & dvlpng comp s/ware using Java, object-oriented dsgn, web-based client/server applic dvlpmt & GUI dvlpmt. MS in Comp Sci needed. Respond to: N. Shanks, Net Explore, Inc., 4200 Montrose, Suite 450, Houston, Texas 77006.

General American

The following positions are available:

General American needs talented individuals to support its Product Calculation Engine development. This highly visible position requires strong interpersonal skills and attention to detail. Successful candidates will join a team of experienced developers in developing the fundamental system components of General American's core business: Individual Life Insurance.

Requirements:

- Highly motivated individual with a strong background in Borland C/C++ on Delphi/Pascal programming.
- Write efficient, legible code and be comfortable solving complex problems.
- Exceptional debugging skills, including CPU debugging.
- Excellent math background.
- Strong interpersonal skills.

General American needs talented individuals to support its Client Server/Internet/Extranet Applications development. Successful candidates will join a team of experienced developers working with the state-of-the-art technologies. (Windows NT Server, MQSeries, Domino/Lotus Notes, Java and SQL databases).

Requirements:

- Highly motivated individual with strong background in software development.
- Understanding of n-tiered architecture and the Internet.
- Understand Domino Web development and Domino's associated companion products.
- Knowledge in Lotus Notes application development.

and/or

- Experience with Windows development and databases.
- Knowledge of Borland C++ on Delphi/Pascal.
- Strong interpersonal skills.
- Knowledge of Java, HTML and Active Server Pages is a plus.

General American is seeking talented programmers to support its Illustration and Marketing Applications development. This highly visible position requires strong interpersonal skills, attention to detail, and strong goal orientation. Successful candidates will join an experienced team and participate in design, development, and customization of life insurance illustration systems using Delphi (Pascal) and C++ with OWL.

Requirements:

- Creative and highly motivated individuals with strong background Windows development.
- Thorough knowledge of Windows SDK, C++,
- Experience with Visual Development tools.
- Be able to write efficient, legible C++/Pascal code.
- Be comfortable with solving complex problems.
- Possess exceptional debugging skills.

Please list all positions:

- Actuarial exams of actuarial programming experience
- Life insurance vertical market experience.
- SNA LU6.2 APPC client/server application development.
- Good understanding of internals of OLE.
- Knowledge of Borland OWL class libraries.
- Knowledge of relational data base concepts and SQL
- Background in object-oriented analysis and design in Windows.
- Knowledge of PVCS version control

General American is Fortune 500 company that believes in the strategic importance of using technology for business advantage and is a recognized technology leader in the life insurance industry. Positions' location is suburban St. Louis. We feature a smoke-free work environment, business casual environment, flexible work hours, a performance incentive program, a comprehensive benefits package and a competitive salary structure. General American encourages its technical staff to keep abreast of the latest technologies and industry trends through its Education/Professional Reimbursement Policy. The program covers 100% of the cost of achieving a graduate degree, technical certification and industry education designations. As a multi-cultural organization, we recognize the strength of a diverse workforce. For confidential consideration, send resume to: General American/HR-Employment/Kim Crocker, 13045 Tesson Ferry Road, St. Louis, MO 63128, FAX: 314-835-8188, Email: kcrocker@genamer.com.

PROGRAMMER/ ANALYST

To provide technical support and assistance related to the applications of Paradox, BASIC, Utilities, and RPG, including design, coding, testing, implementation, documentation, and maintenance. Bachelors in Computer Science, Information Systems, or a related area, five (5) years of experience providing technical support, and thorough knowledge of programming languages. Send letter of interest, resume, and names and telephone numbers of three references to:

Human Resources
The McCoy Group, Inc.
P.O. Box 689
Dubuque, IA 52004-0689

Systems Analyst for systems analyses, design & development using Oracle tools, implementation of Application System using SQL*Plus, SQL*Forms, s/ware application development, analysis & design of d/bases; test plan preparation & implementation for manufacturing & business accounting s/ware applications; using CASE Generator, SQL* DBA, Oracle Designer/2000 & Oracle Developer/2000; Reqs. Bach. in Comp. Sci., Comp. Engg., Comp. Info. Systems or its foreign educational equiv., & 2 yrs exp in job offered or 2 yrs related exp. such as Programmer Analyst. Will accept 3 yrs college educ plus 3 yrs exp in job offered or related occup. in lieu of reqd educ. & exp. Related exp must include software application development, analysis, design of d/bases, test plan preparation & implementation of manufacturing & business accounting s/ware applications using Oracle, Oracle Designer/2000, CASE Generator, SQL*Plus, SQL*Forms & SQL*DBA. $48K, 40 hrs/wk 8a-5p. Must have proof of legal authority to work permanently in U.S. Send 2 resumes & cover letters (no calls) in Illinois Dept. of Employment Security, 401 S. State St. - 7 North, Chicago, IL 60605, Attn: Lon Bolze, Ref. #V-IL16973-B "Employer Paid Ad"

Programmer Analyst for system analyses, design & implementation of application systems, manage DAP R/3 implementation, develop functional specifications & design requirements for SAP R/3 implementations. ABAP/4 programming, logistics modules, human resources & financial modules of SAP R/3; client liaison, proposal writing, system design using Oracle, Visual Basic, PL/1 on VOS & Pro*C; Reqs. Bach. in Comp. Sci., Comp. Engg., Comp. Info. Systems or its foreign educational equiv., & 6 yrs exp in job offered or 2 yrs related exp. such as Systems Manager &/or Systems Analyst &/or Assistant Consultant. Will accept 3 yrs college educ plus 3 yrs exp in job offered or related occup. in lieu of reqd educ. & exp. Related exp must include proposal writing, requirement study, system design, analysis & implementation of application systems using Oracle, C++, Visual Basic, Pro*C, PL/1 on VOS & Unix. $60K, 40 hrs/wk 8a-5p. Must have proof of legal authority to work permanently in U.S. Send 2 resumes & cover letters (no calls) to Illinois Dept. of Employment Security, 401 S. State St. - 7 North, Chicago, IL 60605, Attn: Brenda Roth, Ref. #V-IL18164-R "Employer Paid Ad"

INFORMATION TECHNOLOGY PROFESSIONALS

Tropical Shipping, a leader in the ocean freight industry, has exciting opportunities in our West Palm Beach facility for IT professionals. Tropical Shipping is revamping its core business systems and is upgrading our voice/data communications infrastructure to meet current and future business requirements. Our technology environment consists of over 30 NT servers, 600 desktops, 150 laptops, Windows 95, migration from mainframe to client/server, global wireless connectivity, electronic commerce, Lotus Notes, Sybase, Oracle, and PowerBuilder with future plans for SQL Server and an all-NT computing platform.

We're growing and that means opportunity for advancement. If you're ready for the challenges that our fast-paced team has to offer, check out the following needs in our corporate office located in Palm Beach County.

Network Supervisor

Lead a team of network support staff, and provide assistance to 600 users. 5 years experience in communications infrastructure planning and implementation of client/server networks, Microsoft NT, ethernet, internet, design aspects of networks to include routers/switches/hubs. *Job Code HR-NS*

Client/Server Support

Systems administration consisting of set-up and support of Windows NT and Novell servers, PC's, communications links, TCP/IP, troubleshooting, user support, and management of the company's internet/intranet facilities. *Job Code HR-CSS*

Lotus Notes Support

Administration of the company's Lotus Notes e-mail and applications programs, to include server configuration, PC configuration, configuration and management of the company's network of notes servers or include efficient operation, back-up, security administration and monitoring. *Job Code HR-LNS*

Powerbuilder Support

Design and development of new applications as well as support of existing PowerBuilder app's. Must be well versed in PowerBuilder, class libraries, design techniques, database architectures, and SQL programming. *Job Code HR-PS*

We offer a generous relocation package in addition to an excellent benefits and compensation package. For consideration, please send resume with salary history, including Job Code to: Tropical Shipping, Attn: Human Resources, 821 Avenue E, Riviera Beach, FL 33404. Fax: (561) 848-2956. E-mail: mgrund@tropical.com

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MIS MANAGER

Career enhancing position with a major A+ property/ casualty company located in the Northeast for individual to work with the MIS Director and act as his assistant. This is a high profile position which has an excellent opportunity for advancement.

The position will require that the individual work and communicate with all levels of company staff, provide technical leadership and training to other staff members, and be "hands on" with the capability to lead the members of a small systems and programming staff to the successful completion of multiple tasks.

Requirements include work experience in the property/casualty industry, a minimum of 8 year's experience in IS with 4 years of management exposure, a current and thorough technical knowledge of the AS/400, and knowledge of both AS/400 COBOL and RPG. Experience with the WIN-S software package is a major + along with knowledge of PC's and LAN's.

Position offers an excellent starting salary, a full range of benefits and an incentive bonus program. Resumes will be kept in the strictest confidence. Candidates should submit their resume, with desired salary, to: **GNY, Personnel Dept., 200 Madison Ave., New York, NY 10016. Fax: 212-213-1527**

EOE M/F

GNY

PROGRAMMER II

Watson Clinic LLP, a renowned multi-specialty physician group practice located in Lakeland, Florida, is currently seeking a Programmer to coordinate application development and maintenance in COBOL and other tools. A BS degree in Computer Science and 3 years of recent programming experience in COBOL, CICS, and IBM mainframe are required. MUMPS, SQL, RISC-6000 AIX experience strongly desired. Medical and financial computer applications experience is a definite plus.

Watson Clinic LLP is a quiet strength in the exceptional Central Florida community, where you will enjoy a relaxed suburban lifestyle, offering easy access to both Orlando and Tampa. For consideration, please forward resume with salary requirements to WATSON CLINIC LLP, Human Resources, 1430 Lakeland Hills Blvd., Lakeland, FL 33805. Phone (800) 356-5735 or Fax (941) 680-7598. EOE.

SOFTWARE ENGINEER: Strong working knowledge in Design & Development of Applications using SYBASE RDBMS. Proven ability in Database Administration of large SYBASE applications; Experience in Performance Tuning & Optimization of SYBASE servers. Demonstrated ability to work with SUN-OS/Unix Operating systems, C, MS-Windows, APT, DB-Library/C, SQR, T-SQL, Stored procedures, Triggers. The job duties are: Analysis of current procedures and problems to refine and convert the data to programmable form, determine output requirements; study existing system to evaluate effectiveness, upgrade systems presently in use; develop, test and implement new software, observe functioning of newly implemented systems and programs for trouble areas; correct systems/programs as necessary. Requires Bachelors in Computer Science (or) Math (or) Science with two years experience in software development. 40 hours per week at $70,000- per year. Please send resume to Case #72128, PO Box # 8998, Boston, MA 02114

Programmer-Analyst (5 openings) Design, develop, test, and document comp programs. Applying knowledge of programming tech and comp sys. Formulate plan outlining steps required to develop program, using structured analysis and design. Convert project specifications, using flowcharts and diagrams, into sequence of detailed instructions and logical steps for coding into language processable by comp, applying knowledge of comp sys and comp languages of PowerBuilder 5.x, Microsoft C, Oracle 7.2, and MS SQL Server 6.0. Reqs: Bachelor in Comp Sci., Comp Electronics, Sci. (any field), Engg. (any field), Math, or its foreign edu equivalent. 2 yrs exp in the job offered or in a related occupation as a Computer Programmer, Sys Analyst, S/W Eng., Comp Consultant, or Database Administrator. 2 yrs exp in design and development of S/W sys, 1 yr using PowerBuilder, and SQL Server, and 8 mons exp with C and Oracle. $68,080/yr, 40 hrs/wk, 8:30a-5:30p, M-F. Send 2 copies of resume/letters of application to Job Order #98-220, PO Box 989, Concord, NH 03302-0989.

Consultant - Manager (Pittsburgh) Oversee engagements involving analysis, design and implementation of client-server based system w/ focus on Oracle dbase development utilizing Oracle Supervise projects by Jr. Consultants. Assist in engagement adm. incl. budget, scope and scheduling. Reqts: Master's Degree in Computer Sci., Eng'g (any type), Math or Info. System + 1 yr exp in job offered or 1 yr exp as Consultant, Analyst or Software Engineer. Rel. exp. Must incl. developing client-server systems using Oracle. 40 hrs/wk, 9am-5pm, $8,136/yr. Must have proof of legal authority to work in USA. Send resume to Duane M. Brentzel, Manager, Greensburg Job Center, 599 Seitz Lane, Greensburg, PA 15601. Refer to Job Order #8036574.

Technical Instructor needed to deliver certified computer technology curriculum, develop customized curriculum for private groups, setup classrooms for technical courses, consult, keep up with new technologies, continue to enhance classroom management process, work directly with project managers at meetings, advise students on additional and related classes, train sales team how to educate our customers. Salary $70,000-$84,000/year based on experience, 40-hour work week. Requires B.S. in computer science or related business/engineering field, MCSE or MCT in NT Core technologies or CNE or CNI in NetWare 3.12 or 4.1x, two (2) years practical experience with computer technologies. Send two (2) resumes to Job Order 807247, Jobs & Training Div., VT Dept. of Employment & Training, PO Box 488, Montpelier, VT 05601-0488.

Programmer Analyst, Pittsburgh, PA Analyze, design, develop Client Server Technology Applications using Oracle, Developer 2000, PL/SQL and PRO*C. Develop Financial Applications and Interface for Legacy system using Oracle Financials, Oracle Applications and Front End Tools on HP-UX platforms and Smart Client Terminals. Req'd: M.S. in Computer Sci. or Engg or Math, 1yr exp in job offered 40hr/wk, 9a-6p. Submit Resume to the Select Appts. N. America, d/b/a DB Concepts, Inc., 310 Grant Street, One Oxford Centre, Suite #1500, Pittsburgh, PA 15219-1417. Tele: (412) 255-3760.

Programmer Analyst needed F/T by IT Co. in Cranbury, NJ. Must have 3 yrs exp analyzing user reqmts to dsgn/dvlp/test & implmt business applics using COMS, DMS II, COBOL, WFL, SDF in Unisys A-series envrnmt. Reply by resume to: HR Dept., Infopower Consulting Services, Inc., 1 Schenk Rd, Cranbury, NJ 08512.

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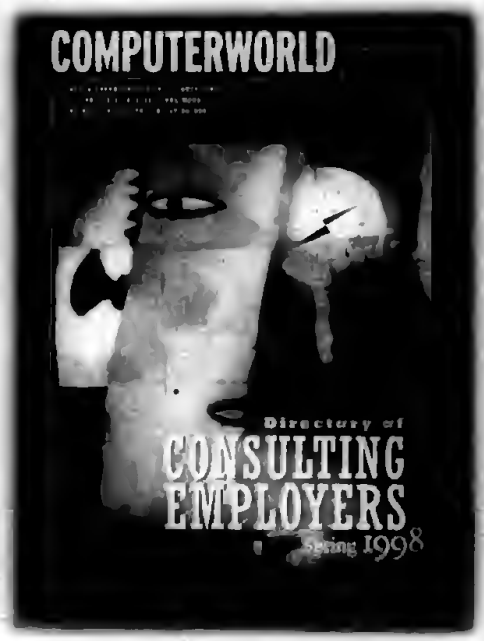

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When it comes to entering new technological territory, you never feel like a

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At IBM, we are continually innovating, creating a future most can only imagine. If you want to see your efforts propel your career, apply them to the challenges at IBM. We can give you the advantages of working for an industry leader, and we offer a level of responsibility that is challenging and offers you potential for continued achievement and career growth. Bring your expertise to the forefront.

Tivoli Consultants

Demonstrate your natural leadership and communication abilities as you improve the efficiency of our IS organization's network environment. A strong background in networking systems, offerings and solutions, with experience in integrating multi-vendor networks and associated management systems, along with knowledge of LANs (TRN, Ethernet, etc.) and familiarity with network systems management. Qualified candidates will possess a Bachelors degree or equivalent along with 2+ years administration experience in two or more of the following: AIX, HP/UX, SunOS, Solaris, NT, or Novell. Shell Scripting experience with at least one of the following is required: PERL, CShell, AWK, SED, KORN Shell, or Bourne Shell. Travel is required.

Opportunities available in the Midwest & Northeast

In addition to an excellent salary and benefits package, we offer an entrepreneurial working environment that will allow you to reach your professional goals. For consideration, please send your resume to: **IBM Staffing Services, Dept. 40982, c/o TMP Worldwide, 3803B Computer Drive, Raleigh, NC 27609; Fax: 1-919-786-0456; e-mail: jobs@us.ibm.com.** Visit our website at **www.empl.ibm.com** for additional information on current positions. IBM is committed to creating a diverse environment and proud to be an equal opportunity employer.

IBM

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Software engineer with 2 years of experience as a s/w engineer or computer professional, who will develop s/w systems, applying computer science, engineering, and mathematical analysis, with 2 years of experience using AS/400, OS/400, CL/400, SQL/400, RPG/400. In addition, the incumbent must have at least one year of experience with ILERPG and SQLRPG. Analyzes s/w reqs. and performs testing and user training after development. Extensive travel and frequent relocation. Bachelor's degree in one of several limited fields: engineering, mathematics, computer science or physics. $61,000/yr. 40 hours/wk., 9:00 am - 5:00 pm. Send resumes, listing job order number 7039444, to: Mr. Terry Kinney, Manager, Armstrong County Job Center, 1270 N. Water St., P.O. Box 759, Kittanning, PA 16201.

Consultant. Develop, implement, maintain and test software applications for management information systems. Tools: IBM Mainframe; COBOL; COBOL II, DB2; CICS, JCL, FILEAID; VSAM; SPUF1; INFOMAN; MVS, EASYTRIEVE; TSO-ISPF; TCP-IP. B.S. in Computer Science* plus 2 years experience in job offered or as Programmer Analyst required. (*Bachelor's degree in any field plus 1 year experience in software development acceptable in lieu of B.S. in Computer Science). Previous experience must include IBM Mainframe; COBOL. 40 hrs/wk. 9am-5pm. $55,000/year. Submit resumes to the following address: Alien Employment Certification Program, P.O. Box 10969, Tallahassee, FL 32302-0969. RE: Job order number FL-1819812.

Sr. Programmer/Analysts (3 openings) sought to work on design, development and implementation of customized software applications in a client/server environment; design and development of Graphical User Interface (GUI); and development of Oracle databases. Also, responsible for definition of clients' business requirements. Applicants must have a Bachelor degree in Computer Science, Engineering, or a related field plus 2 years experience in the Job Offered or in programming client server applications. Such experience must include PowerBuilder, Oracle, and client server architecture. Hours: M-F 8-5, 40 hrs/wk. Salary $58,000/yr. Must be willing to travel to various client sites throughout the U.S. If interested, please send two (2) resumes to: Case #71969, PO Box 9169, Boston, MA 02114.

COMPUTERWORLD c@reers

computerworldcareers.com

Programmer/Analyst (Client sites in Houston, TX area) -Design, develop, code, test, implement, and maintain programs for commercial and financial applications systems using C++, Visual Basic, and MS-Access. Bachelor's degree in Comp. Sci., Engineering, or Math, and 2 yrs. exp. in job req. 40 hrs/wk., 8:30am-5:00pm, $42,224/yr. Apply at the Texas Workforce Commission, Houston, TX, or send resume to 1117 Trinity, Room 424T, Austin, TX 78701, J.O. #TX0610769. Ad Paid by an Equal Opportunity Employer.

Analyst/Programmer (3 positions) Design and development of software systems using the Synon/2E CASE technology Determine system requirements, design system, code files and programs, test systems performance positions. Requires 2 years experience as an analyst/programmer or software engineer in Synon/2E. Must be willing and available to relocate to worksites throughout the U.S. on serial assignments of 3-10 months. $64-65,000 yearly. M-F, 8-5pm. Interviews, San Francisco, CA. Send this ad & your resume/letter of qualifications to Job #41210061MMO, P.O. Box 269065, Sacramento, CA 95826-9065.

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That's because at American General Finance we offer more than just a job. We offer a great career with serious potential. As part of American General Corporation, we can offer you the support of a company with $96 billion in assets and market capitalization of $18 billion. Now that's awesome support. That's why we're a leader in consumer lending, home equity loans and retail sales financing. And, with ***substantial sign-on bonuses*** and a casual work environment, just imagine where we could take your career. We have the following opportunities available at our headquarters location in Evansville, IN.

COBOL Programmer Analyst

Requires 4-5 years experience on an IBM Mainframe, programming in COBOL in an MVS environment.

Sr. Systems Analyst

Requires 8-10 years related experience in an IBM mainframe environment.

Systems Analyst (AS/400, COBOL)

Requires 4-5 years of combined experience in COBOL programming and analysis in an AS/400 environment.

As an industry leader, we offer a competitive compensation and comprehensive benefits package, including matching 401(k) and a discount stock purchase program. For immediate consideration, please forward your resume, including salary history, in confidence, to: **American General Finance, Employment Department (EC0712), P.O. Box 59, Evansville, IN 47701-0059; Fax: (812) 468-5119 Email: RecruitMe@AGFinance.com** Equal Opportunity Employer.

AMERICAN GENERAL

American General Finance

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Computer Software Design Engineer: Design, develop, and debug complete computer systems for small businesses. Determine customer needs, design systems and software to take care of billings, management, accounting, inventory control, sales reports, etc. Generally use IBM and compatibles. C computer language programmable relational databases, Novell and Lantastic Network equipment and operating systems, programmable keyboards, and scanning devices and software. Write customized computer manuals. Provide technical support and training to end users. 40 hour work week, 9 am to 5 pm. Salary $35,000 per yr. Requires Bachelor degree in Comp. Sci. and 1 year experience in job offered or 1 year as College Instr., Comp. Sci. Experience to include writing customized computer user manuals or computer course instruction manuals. Must have proof of legal authority to work permanently in the U.S. SEND 2 COPIES OF BOTH RESUME & COVER LETTER to ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street, 7 North, Chicago, Illinois 60605, Attention: Arlene Thrower. Reference #V-IL19047-T. NO CALLS. AN EMPLOYER PAID AD.

VICE PROVOST AND CHIEF INFORMATION OFFICER

UNIVERSITY OF ROCHESTER

The University of Rochester seeks applications from highly qualified individuals to become the **Vice Provost and Chief Information Officer.** This new position consolidates responsibility for directing the strategic planning and operations of the University's academic and administrative computing, network and Internet systems, and telecommunications.

For a review of the full job description and application information see the listing on our Website at: **www.rochester.edu/pr/News.**

www.rochester.edu/pr/News

New York's PREMIER INFORMATION TECHNOLOGY Career Expo-Downtown

The nation's largest locally focused employment Website **www.jobs98.com** and **COMPUTERWORLD** invite you to meet with New York's top IT employers.

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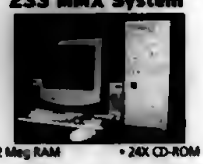

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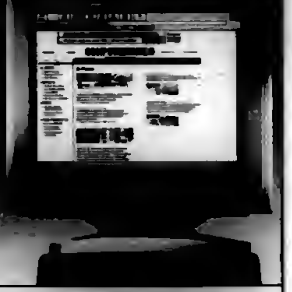

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INDUSTRY ALMANAC

PCs buoyed in summer

Is the worst behind for PC makers? For the first six months of this year, sub-$1,000 prices, a glut of models that carried aging processors and a market waiting for Windows 98 all knocked PC makers for a loop. July's arrival brought sunnier news.

Shares of Dell Computer Corp. (Nasdaq:DELL), Gateway (NYSE:GTW) and Compaq Computer Corp. (NYSE:CPQ) began to rise, buoyed by rising PC prices (see chart).

Last week, the high-tech-heavy Nasdaq stock market reached a new high — 1968.41 on Wednesday — led by Dell and Intel Corp. (Nasdaq:INTC). And Compaq called its $899 PC its most profitable model. The company reported that its consumer business helped boost second-quarter sales to $5.8 billion, a 5.7% hike above last year (Compaq posted a $3.6 billion loss for the period. The company would have reported a $32 million profit without charges for its purchase of Digital Equipment Corp.)

Analysts differ on the PC market's promise but seem to agree that price dips won't go on forever.

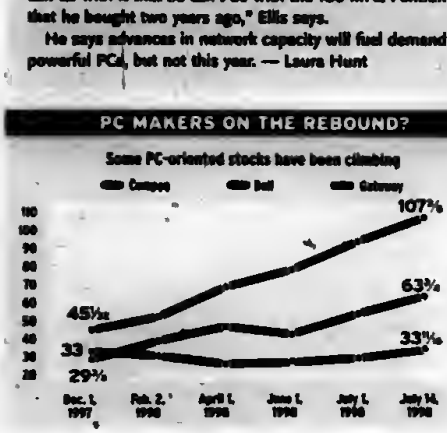
Richard Chu, an analyst at Cowen & Co. in Boston, says aggregate demand has been consistent in both the consumer and corporate PC markets and that prices can't continue to dive indefinitely. "Six months from now, prices won't be half what they are now," he says.

Craig Ellis, portfolio manager at the Orbitex Information Technology and Communication Fund in New York, says he is avoiding PC makers' stocks until networking technology demand for high-end PCs grows. "The consumer can go out today and buy a 300-MHz Pentium PC, and there's nothing he can do with it that he can't do with the 100-MHz Pentium that he bought two years ago," Ellis says.

He says advances in network capacity will fuel demand for powerful PCs, but not this year. — Laura Hunt

PC MAKERS ON THE REBOUND?

Some PC-oriented stocks have been climbing



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GSN	31.00	25.69	General Signal Networks	30.50	1.13	3.1
GTE	64.38	60.50	GTE Corp	56.00	0.63	0.6
LU	98.69	16.19	Lucent Tech (H)	93.69	7.81	9.1
MADGF	9.13	3.25	Madge Networks NV	4.56	0.50	9.9
MCIC	64.88	21.31	MCI Communications Corp (H)	67.88	0.88	11.3
NETM	5.25	2.09	NetManage Inc	2.69	0.25	7.5
NTBX	9.50	0.94	Netrix Corp	3.00	0.25	8.1
NCDI	13.75	5.88	Network Computing Devices	8.00	0.23	3.0
NWRE	22.38	11.63	Network Equipment Tech	14.00	1.00	7.1
NN	69.38	18.94	Newbridge Networks Corp	23.31	1.00	4.4
NT	89.25	39.69	Northern Telecom Ltd	55.56	2.31	4.0
NOVL	13.88	6.72	Novell Inc (H)	13.19	0.63	5.0
OPSY	14.50	5.50	Optical Data Systems Inc	7.13	0.19	2.6
PCTL	13.50	8.63	Picturetel Corp	10.88	1.19	12.3
OPEN	3.50	0.69	Proxicom Inc	1.18	0.18	11.6
RACO	4.11	1.00	Racotek Inc	2.69	0.00	2.3
RADS	29.38	6.38	Radiant Systems Inc	7.25	0.00	0.0
RTEC	11.63	8.06	Retix	8.03	1.47	20.0
SBC	64.56	26.75	SBC Communications	60.94	1.25	2.1
SFA	27.94	14.00	Scientific Atlanta Inc	26.00	1.25	5.1
SNSA	10.44	8.06	Sensa Corp	9.75	0.25	2.9
SCIN	75.63	44.00	Sprint Corp	71.38	1.00	1.3
QWST	41.75	14.38	QWest Communications (H)	41.06	4.38	11.7
SMSC	18.13	8.00	Standard Microsystems Corp	8.75	0.06	0.7
USW	58.00	25.63	US West Inc	51.50	0.88	1.7
XIRC	18.00	8.63	Xircom	16.81	0.94	5.8
XYLN	11.31	13.38	Xylan Corp	29.00	2.06	7.6
NYSE						
AAPL	58.13	12.75	Apple Computer Inc (H)	36.63	4.44	13.8
CPQ	39.75	29.13	Compaq Computer Corp	34.50	2.38	7.4
DELL	116.94	35.00	Dell Computer Corp (H)	118.94	18.50	18.4
GTW	81.94	25.06	Gateway 2000 Inc (H)	67.25	6.25	10.2
HWP	82.38	38.00	Hewlett Packard Co	80.25	1.00	1.1
MUEI	21.00	8.44	Micron Interchannel Inc	11.00	1.44	10.9
NHPNY	72.75	48.94	NEC Ameriica	48.00	1.50	3.2
SGI	60.31	30.94	Silicon Graphics	34.50	1.44	11.0
SUNW	53.31	30.38	Sun Microsystems Inc	52.75	7.06	15.3
OTHER EXCHANGES						
DGN	37.94	13.38	Data General Corp	15.50	0.31	2.0
IBM	129.31	88.63	IBM	118.81	1.88	0.8
MDCO	8.63	5.13	Meridian Data Inc	4.22	0.53	11.2
NCR	38.50	25.63	NCR Corp	34.38	1.75	5.4
PRCM	18.63	6.13	PenCom Technology Inc	8.50	0.06	7.5
SQNI	31.25	30.50	Sequent Computer Sys	10.00	0.00	0.0
TEXM	8.00	2.88	Texas Micro Inc	5.75	0.06	1.2
SPA	66.75	25.44	Spectra Computer Inc	24.63	2.50	11.3
UIS	30.38	0.38	Unisys Corp	30.38	2.81	30.2
NASDAQ						
ADBE	53.13	33.38	Adobe Systems Inc	38.69	0.81	2.0
AMSWA	15.63	6.31	American Software Inc (L)	8.44	0.44	6.6
APLR	12.16	3.88	Aplicio Inc	4.75	0.13	3.2
ARSW	53.25	25.38	Arbor Software	38.06	3.19	9.2
ARDT	15.88	6.88	Ardent Software	14.69	0.69	4.8
ARSC	86.38	10.25	Ares Corp	26.63	1.88	5.8
ADSX	51.13	30.56	Autodesk Inc	31.88	3.56	10.1
BMCS	56.38	27.38	BMC Software Inc (H)	55.00	5.25	6.5
BOOL	66.00	15.63	Books and Bridges	25.13	0.75	3.1
BOBY	80.00	8.63	Business Objects	11.88	1.44	8.7
CAFN	3.50	0.88	Cardinal Software Inc (L)	0.81	0.00	0.0
CNTR	5.31	0.88	Centura Software	1.25	0.10	12.0
CHKPF	66.50	22.00	Checkpoint Software	46.75	4.31	15.9
COGNF	34.75	17.63	Cognos Inc.	25.63	0.66	2.5
CA	61.50	41.69	Computer Associates	58.75	2.50	4.4
CPWR	35.75	26.75	Computware Corp (H)	34.00	1.10	2.2
CSRE	11.88	4.25	Corsaire Inc	7.00	0.44	5.8
CSOFF	8.63	1.40	Cosoft Corp	1.75	0.13	1.7
DBTI	5.38	2.19	Database Technologies Inc	3.94	0.44	12.5
DCTR	30.63	26.00	Documentum Inc	50.13	0.13	0.2
FILE	38.88	1.38	Interet Corp (H)	30.75	1.00	3.4
FRTE	10.88	3.69	Fourth Software	6.19	0.44	7.8
FTPS	4.75	1.38	FTP Software Inc	1.47	0.06	3.9.1
GPSI	40.06	20.50	Great Plains Software Inc	30.00	2.63	6.8
HUMCT	34.25	23.44	Humminbird Comm Ltd	25.75	0.19	0.8
MYSW	40.63	24.38	Mapinfo Software Corp	35.88	5.44	30.0
IMC	80.00	42.00	Information Resources	48.56	0.44	2.3
IFMX	12.44	4.00	Informix Corp	7.38	0.31	4.4
INSO	12.38	0.44	Inso Corp	3.75	0.44	0.3
INGR	14.38	3.81	Intergraph Corp	7.06	0.72	9.3
LEAF	4.06	1.22	Interleaf Inc (L)	1.53	0.09	0.5
ISLI	27.19	11.25	Intersolv Inc	19.88	0.41	2.2
INTU	30.75	25.63	Intuit Inc (H)	63.38	2.98	3.5
JDEC	44.25	24.88	JD Edwards Co (H)	44.13	1.19	2.5
LTC	32.81	9.56	Learning Co (Tool) (H)	31.81	3.19	11.1
MANU	80.38	28.50	Manugistics Group Inc	80.50	7.44	4.8
MAPS	14.25	6.38	Mapinfo Corp	11.50	0.38	3.4
MATH*	4.63	2.38	MathSoft	3.81	0.44	13.0
MENT	15.13	8.63	Mentor Graphics	10.06	0.50	5.2
MFCY	180.63	86.19	Micro Focus	38.31	3.31	3.5
MCAS	14.66	5.75	Microcanvas Inc	12.75	0.75	5.8
MSFT	118.88	59.00	Microsoft Corp (H)	116.75	7.44	6.7
OBJS	3.25	0.44	ObjectShare Inc	2.38	0.25	9.5
OMTL	15.00	4.13	Omtool Ltd	4.88	0.06	1.3
ORCL	42.13	33.75	Oracle Corp	37.66	2.34	6.5
PMTC	16.50	14.00	Parametric Technology	15.25	1.13	6.0
PSFT	51.44	66.00	Peoplesoft	49.00	6.50	1.7
PTEC	18.38	0.88	Phoenix Technologies	12.06	0.25	2.1
PSQL	21.88	7.63	Platinum Software (H)	16.50	3.50	14.7
PLAT	94.31	14.38	Platinum Technology	31.06	1.13	3.5
PRGS	38.13	30.69	Progress Software Corp (H)	36.56	0.38	0.8
RNBO	60.00	31.00	Rainbow Technologies Inc (L)	15.38	1.88	8.8
REDB	11.63	3.66	Red Brick Systems Inc	5.03	-1.47	-32.6
RDSI	5.88	2.88	Rdsi Systems, Inc	4.50	-0.88	7.6
SCOC	7.25	2.06	SCO Inc (L)	3.44	-0.88	3.8
SDTI	44.50	15.13	Security Dynamics Tech	15.75	-1.63	0.3
SSW	30.81	13.88	Sterling Software Inc (H)	31.50	1.10	3.9

Ticker	52-Week	Range	July 17 2 PM	Qtr Net Change	Qtr Pct Change
SDRC	30.00	14.81	Structr Dynamics Research	14.94	-0.81	5.2
SYBS	23.63	6.13	Sybase Inc	8.94	1.38	18.1
SYMC	32.63	17.00	Symantec Corp	27.50	2.69	10.9
SNPS	47.13	29.13	SynOpsys	43.81	0.00	1.8
SSAP	17.63	6.25	System Software Assoc	6.47	-0.56	8.2
SYSK	14.50	1.68	Systemsoft Corp	1.22	0.06	2.5
BAANF	50.38	28.56	The Baan Co	42.75	1.13	2.1
TBLW	5.19	0.75	Tadpolesion Corp	1.38	0.13	10.0
VIAS	65.25	12.38	Viasoft Inc	15.88	1.00	7.0
VSIO	30.88	26.38	Visio Corp	-46.13	1.63	3.4
WALK	20.44	11.88	Walker Interactive Systems	13.13	0.88	8.1
WALL	21.88	10.13	Wall Data Inc	14.81	0.63	4.5
WANG	32.25	18.63	Wang Laboratories Inc	24.38	0.25	1.0
NASDAQ						
AMZN	143.75	11.63	Amazon.com	111.56	18.31	18.9
AOL	126.00	31.13	America On-Line (H)	129.88	14.69	13.9
ATHM	57.25	18.00	At Home Corp	69.13	1.56	2.2
EDFY	22.13	9.06	Equity Corp	10.00	-0.31	3.0
XCIT	111.00	14.25	Excite Inc	83.00	10.13	12.8
SEER	45.00	4.88	Inforseek Corp	12.00	0.81	2.5
LCOS	107.25	19.00	Lycos Inc	69.50	2.00	3.0
NSCP	69.00	14.88	Netscape Comm Corp	32.81	3.66	30.3
NSOL	98.00	11.75	Netvision Solution Inc	40.56	1.31	3.7
OMKT	29.13	8.38	Open Market Inc	20.38	2.50	14.4
PEGS	31.00	12.50	Pegasus Systems	24.00	-2.31	-8.8
PSIX	15.75	4.25	PSINet	13.38	0.38	2.1
QSOE	3.88	0.63	Quantumedoca Corp	0.63	0.00	0.0
SCUR	15.25	5.50	Secure Computing Corp	3.31	1.00	10.2
SPYG	15.38	4.00	Spyglass Inc	12.66	1.53	13.5
YHOO	207.50	29.94	Yahoo! Inc	186.59	7.53	4.2
NYSE						
AMD	42.75	15.38	Advanced Micro Devices (L)	30.56	0.38	2.7
ADI	29.63	25.00	Analog Devices Inc	27.00	1.88	7.5
CRUS	17.75	8.06	Cirrus Logic	10.56	-0.88	-7.7
CY	10.94	7.88	Cypress Semiconductor Corp	8.38	-0.31	3.8
INTC	102.00	65.06	Intel Corp	81.06	3.06	3.9
LSCC	39.50	25.63	Lattice Semiconductor	34.94	2.94	8.2
LSI	38.75	18.63	LSI Logic Corp	22.88	-0.56	-2.4
MCRL	48.88	21.50	Micrel Semiconductor Inc	36.19	4.63	14.1
MU	80.06	30.06	Micron Technology	29.13	-0.16	1.0
MOT	66.56	48.56	Motorola Inc	53.88	1.88	3.3
NSM	63.88	12.31	National Semiconductor	14.06	1.44	11.4
RMRS	86.75	55.00	Ramtron Inc	67.25	3.50	5.5
TXN	71.25	39.63	Texas Instruments	51.56	2.56	4.3
VLSI	38.69	14.56	VLSI Technology	18.88	1.25	7.1
XLNX	57.38	38.50	Xilinx	37.00	-0.63	1.7
OTHER EXCHANGES						
ADPT	34.25	18.50	Adaptec Inc	13.66	0.16	1.2
APCC	24.38	21.38	American Power Conversion	31.94	2.31	7.8
ARDA	2.81	1.00	Ardentec Inc	1.68	-0.13	-8.5
CREAF	29.19	11.00	Creative Technology Ltd	12.38	-0.81	-6.2
DTCE	10.63	0.50	Data Race Inc	1.84	1.22	195.0
DTM	11.69	1.88	Datatape Corp	12.38	0.19	1.0
EMC	51.38	22.52	EMC Corp (H)	51.38	3.51	6.9
EMLX	18.75	5.31	Emulex Corp	30.38	3.88	09.6
ESCC	35.88	21.44	Evans and Sutherland	34.00	1.13	4.1
EXBT	19.63	5.63	Exabyte	6.88	-0.44	-6.0
ISFD	4.50	1.00	Intelligent Info. Systems (L)	1.10	0.00	0.0
IOM	18.75	4.75	Iomega Corp	6.13	0.31	5.4
JBMC	23.25	9.13	Jabil Circuit Inc	5.81	-0.18	3.1
MTSY	94.88	13.00	Micro Touch Systems Inc	11.75	0.00	0.0
MTIC	12.88	4.69	MTI Technology Corp	8.75	0.75	9.4
AQM	23.06	3.25	QMS Inc	4.31	0.81	23.2
QNTM	43.25	17.75	Quantum Corp	22.06	1.50	7.3
RDUS	8.13	2.25	Radius Inc	2.00	-0.25	-9.1
SEG	18.50	17.25	Seagate Technology	25.25	0.94	3.9
SOIS	14.00	5.66	Sonic Solutions	4.00	-0.13	3.0
STK	49.13	25.25	Storage Technology (H)	49.13	3.56	7.8
TBT	66.38	33.50	Tbatwoman Inc	94.81	1.13	-0.1
WDC	34.75	10.25	Western Digital Corp	12.44	0.19	1.5
XIRC	115.00	66.38	Xircom Corp	112.25	4.19	3.9
NASDAQ						
AMSY	58.88	13.63	American Right Systems (H)	32.56	3.63	12.8
ANLY	36.50	25.88	Analytics Intl	29.50	1.63	5.8
AUD	75.50	66.38	Auto Data Processing	75.31	0.38	0.5
CATP	58.38	31.00	Cambridge Tech Partners	30.75	-4.13	-10.0
CEN	62.38	32.13	Ceridian Corp (H)	63.31	5.56	9.8
CDO	25.25	13.44	Comdisco Inc	19.19	1.25	6.1
CPU	16.00	14.38	CompUSA Inc	21.31	2.81	15.2
CMRZ	31.50	25.75	Computer Horizons	31.50	-4.50	-12.5
CSC	80.50	53.63	Computer Sciences	66.50	2.13	3.3
TSK	49.38	27.00	Computer Task Group	36.56	-0.44	1.2
EGGS	29.13	4.19	Egghead Discount Software (H)	21.06	1.00	4.5
EDIS	30.88	29.56	Electronic Data Systems Corp	36.88	0.00	1.8
ICO	39.63	32.63	Imation Corp	32.94	-0.19	0.4
REA	88.94	84.00	Reuters Inc	86.50	-1.81	2.1
MICA	29.75	10.06	Micronics Inc	13.81	1.25	8.5
PAYX	45.00	21.69	Paychex	43.44	1.44	3.4
PMS	44.63	24.00	Policy Management Sys (H)	43.50	3.81	9.6
REY	34.06	18.44	Reynolds and Reynolds	18.66	1.06	5.8
SAPE	62.00	25.88	Sapient Corp (H)	55.25	-2.25	3.6
SCBI	56.75	8.50	SCB Computer Tech Inc	10.06	0.06	0.9
SEIC	76.00	23.75	SEI Corp	72.25	3.00	8.3
SMS	38.13	42.50	Shared Medical Systems (H)	84.13	5.75	7.3
SSPE	94.75	10.75	Software Spectrum Inc	20.75	-0.50	4.0
SDS	66.06	22.44	Sungard Data Systems	38.50	0.56	1.3
SYNT	99.00	3.00	Synetic, Inc	29.75	0.00	0.0
VSF	17.25	11.00	VanStar Corp	11.50	-2.13	-21.4

KEY (H) = New annual high reached in period (L) = New annual low reached in period

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Network nirvana promise revived

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vices on the network.

Corporate users and analysts said that if Sun's promises for its Jini software meet reality, it could greatly reduce administrative costs and revolutionize how IS views and uses its networks.

Such spontaneous networking would open up new businesses and new ways of doing existing business in the following ways:

- Your information systems manager plugs in a new printer. You turn on your computer and the PC automatically recognizes that the printer is available without any need to change settings.
- As a user runs a component-based application, the application could be broken up, and different components could be processed on different machines, speeding computing.
- An IS manager that handles two merged banks could seamlessly move information and data back and forth between disparate operating systems without the massive conversions now needed.

"I'd love to not have to visit each desktop to install storage or disk drives or printers," said Brian Hinkel, director of global infrastructure and services at Owens Corning in Toledo, Ohio.

"If I could network in peripherals or storage space without doing configuration across operating systems, that would be more than interesting to us," said Larry Hagerty, group product manager at GTE Data Services in Tampa, Fla.

But attempts to make it easier to build and add on to a computer network trail back 10 years or more. Taking the distributed computing concept across the network has been a hard row to hoe.

Avoiding configuration hassles "would be more than interesting to us"

The Japanese government tried to link home appliances and computers in the late 1980s, but the Tron project was ultimately scrapped. Four years ago, General Magic, Inc. developed a language for mobile agents that would work with devices and computers over public networks, but that project was scaled back as the Sunnyvale, Calif.-based company sought near-term profit makers.

Today, the waters are teeming with interest in technologies for on-the-fly networks. For example:

- General Magic is using its technology in its MagicTalk voice-interface product.
- Motorola, Inc. acquired Starfish Software, Inc. last week as part of its efforts to create smart phones that can interact with one another, PCs and other devices over public networks.
- Microsoft Corp. is working on a distributed-applications management project called Millennium. The Windows-based technology has no release or beta dates.
- Microsoft created the Plug and Play feature that was added to Windows 95. It enables some devices to be installed without configuration but only on the Windows platform.
- Hewlett-Packard Co. is working on JetSend, a device-to-device communications protocol designed to simplify interaction. JetSend already is being licensed by companies such as Canon, Inc., Minolta Co. and Ricoh Co.

What separates Jini from the pack is the fact that it was designed so that users can pop devices on and off the network with no need for configuration or integration into an operating system, said Van Baker, an analyst at Dataquest in San Jose, Calif.

"Other companies are working on device-to-device connections," Baker said. "For one device to work with another, they have to be set up to talk to each other. I have to know where it is. I have to find the path to it. I have to name the network. I have to install the drivers. Then, my computer can talk to my printer, for example."

Jini was designed to do that work automatically. Plug in a printer, and it is spontaneously available.

Jini, which uses Sun's 100% Pure Java, is a series of class libraries in Java virtual machines (JVM). Computers and devices with a JVM or embedded Java could be Jini-enabled.

Sun says it has lined up major industry players, such as Ericcson Corp., Federal Express Corp., Novell, Inc., Quaotum and Seagate Software, Inc., to consider using the software in their products and services. □

IT budgets rock the corporate boat

CONTINUED FROM PAGE 1

years ago to 15% today mean that "we've had to ask the company [to make] allowances," said Brian Kilcourse, the company's CIO. Specifically, the chain is spending a lot more on headhunters and salaries. "Other general administration departments, like human resources and accounting, have been asked to hold a much tighter line to free up funds [for IS]," Kilcourse said. "These departments are being squeezed, and they resent it."

According to "IT Metrics Strategies," a newsletter in Arlington, Mass., information technology spending as a percentage of revenue rose from about 2.3% in 1996 to 2.6% last year. IT spending per employee went from $6,160 to $7,521 during the same period. And Framingham, Mass.-based International Data Corp. (IDC) reports that IT spending will be up almost 9.3% this year over last year's levels. IDC further predicts budgets will rise about 10% annually for the next five years.

Several IS managers blamed their swelling budgets on year 2000 projects and labor costs, which are exacerbated by high turnover, the shortage of qualified workers and rising salaries for IS professionals. Indeed, a study of more than 7,000 respondents due this week from Positive Support Review, Inc., a management consulting firm in Santa Monica, Calif., shows that salaries for senior IS managers were up 11.5% from mid-1997 to mid-1998. Middle managers saw their pay rise by 8.5%, according to the study.

"At some point, perhaps after the year 2000 crisis, we'll likely see some of these exorbitant salaries plunge," Hickmott predicted.

Still, to some companies, World Wide Web-related projects, such as online customer service applications, are being billed to marketing departments to keep the expense off the IS balance sheet, users said. That was the case at Barnett Banks, Inc. in Jacksonville, Fla., according to a former IS manager who recently left.

HIGH PROFILE

Average salary ranges for selected IT jobs:

CIO	**$162,000 to $320,000**
Manager of network services	**$77,800 to $114,700**
Database manager	**$75,800 to $97,000**
Programmer/analyst	**$53,300 to $70,100**

Base: Salary review of 7,504 IS professionals at U.S. and Canadian companies with gross revenue of more than $500M. Figures include salary, bonuses and stock options

Source: Positive Support Review, Inc., Santa Monica, Calif.

BOTHERSOME COSTS

Evidence is mounting that some coropanies are chafing about the rising costs of IS. "Companies are starting to look at other options," said Victor Janulaitis, CEO of Positive Support Review. Those include acquiring companies to gain IS talent, moving IS operations away from costly metropolitan areas and relying more on outsourcing, he said.

Some sites take employees from business units to act as liaisons to IS, thereby off-loading personnel expenses. Detroit Medical Center plucked about 10 doctors, nurses and hospital administrators to act as IS liaisons to their respective departments. Part of their job is to explain the impact of new systems development and business process re-engineering to their co-workers.

Pinnacle has outsourced the administration of its Oracle database because keeping that highly paid position staffed was too difficult. At Longs Drug, contractors now make up one-third of the programming staff. San Jose, Calif.-based research firm Dataquest says the IT outsourcing market is growing rapidly. It was $55 billion last year and will soar to $77 billion by 2000.

At Liberty Mutual Systems, short-term projects are likely to be outsourced, according to Hickmott. But the company also recently outsourced its help desk. That step broke its tradition of hiring staffers to manage its IT infrastructure, he said. □

MORE ONLINE

For resources and information on IT salaries, visit *Computerworld online* for a full archive of coverage by *Computerworld*, including our own salary surveys and links to other sources of salary information on the Internet.
www.computerworld.com/more

Netscape previews new browser

By Carol Sliwa

NETSCAPE COMMUNICATIONS CORP. last week posted the preview release of its Communicator 4.5 groupware/browser client, which includes enhanced "smart" browsing, roaming access features and tie-ins to its Netcenter site.

During the instant setup, users will be given options to register for Netcenter. That's the site the company is trying to transform into an Internet business portal where users can access news and information, buy products and communicate with others involved in similar areas of interest.

A new Netcenter service integrated with Communicator 4.5 lets users check their E-mail, use their personal address books and access their browser bookmarks from any computer. Through a "smart addressing" feature, users can access a Netcenter member directory in their Communicator address book.

The new smart browsing capabilities help users locate sites easier through generic Internet keywords, such as car or shoes, and obtain lists of sites related to the information they are seeking.

Netscape product manager Edith Gong said the company plans to issue only two beta releases before the final Communicator 4.5 comes out in the fall. □

Hackers demonstrate NetWare IPX 'spoof'

By Laura DiDio

NOVELL, INC. last week acknowledged a security flaw in NetWare, discovered by an ethical hacker, that can allow intruders to launch a spoofing attack on networks running Novell's proprietary IPX protocol.

But Michael Simpson, a Novell director of marketing, emphasized that the so-called Pandora hack affects only NetWare 4.x and the NetWare 5.0 Beta 3 versions that run the IPX-based protocol.

TCP/IP-based NetWare networks, to which many users are migrating, are immune to the glitch, Simpson said.

Simpson said Novell will decide in the next couple of weeks whether to follow rival Microsoft Corp.'s lead and install a list server to quickly notify users of security flaws and provide patches. A fix is posted on the hacker's World Wide Web page, *www.nmrc.org*.

The Pandora hack and its solution were uncovered by Nomad Mobile Research Centre (NMRC) in Arlington, Texas. NMRC is a group of ethical hackers that specializes in exposing and posting security flaws in operating systems, including NetWare and Microsoft's Windows NT.

The group, whose leader goes by the name Simple Nomad, originally detected the first Pandora flaws last year.

NMRC published a description of the hack and a way to fix it on its Web page.

The latest problem, found by Simple Nomad and another hacker called Jitsu Disk, occurs because the NetWare Core Protocol (NCP) packet signature facility within NetWare won't function properly if the NetWare client workstation is set to a different level from the NetWare file server.

"The end result is that a malicious hacker can spoof another client in the same LAN or intranet, masquerading as someone else. Usually, the intent is to assign themselves higher-level or administrator access privileges," Simple Nomad said.

NMRC said the solution is to set the default NCP packet signatures to Level 3 for the client as well as the NetWare server and to use the recommended C2 security configuration.

But Simple Nomad also noted that the Pandora hack is "not for the casual hacker, since you need a compiler and a network sniffer to really take advantage of the security hole." □

Private 'net

CONTINUED FROM PAGE 1

idea was to use certified Internet service providers to deliver a set level of service. ANX is still under development but is largely finished.

"The next step in the future of health care is the Internet, which is why we're looking at joining ANX or building our own Internet-based network," said Barbara Horwitz, a member of the Michigan Health Management Information Systems group, which is driving the health care group's effort. "We can realize cost savings and become more efficient with the Internet."

The health care group wants to improve links among hospitals and insurers locally first and add other industry members across the U.S. later, Horwitz said. "Everyone could play."

"This [effort] could help move health care technology forward a great deal, which is something that's badly needed," said Mitch Work, an analyst at Sheldon I. Dorenfest & Associates Ltd., a health care information systems consultancy in Chicago.

Work said joining an existing VPN was a good idea. "Why reinvent the wheel when you can join a network that's already up?" he said. ANX is a great model for linking companies with suppliers and trading partners, he added.

Health care organizations could use ANX to verify patients' insurance coverage, submit claims and gather administrative data to determine how to more efficiently provide service. It wouldn't transport confidential patient medical information until privacy and security concerns were addressed, Work said.

Quicker responses about coverage of patients could reduce company losses

Joining ANX also is appealing to John Glaser, vice president and chief information officer at Partners HealthCare System, Inc. in Boston. "I think we and the industry would be interested in this because we could couple the network for transport with national standards for [health care] transactions," Glaser said.

Although the health care group could use ANX for networking just its members, it could also link with the automakers and other parties on the VPN.

"It would be a plus for us and the health care people by expediting transactions and cutting costs," said Wally Mashini, project leader for health care and safety at Ford Motor Co. "There would be a dynamic exchange of data instead of it taking a month or more to get information."

Horwitz's group already has piloted a health care standard whereby hospitals check patient coverage eligibility over the current network instead of by phone calls. She said she believes the big benefits can be bigger if ANX is used.

The process used to take between 30 seconds and 20 minutes but was shortened to 15 seconds. Meanwhile, the cost per transaction has dropped from a range of 50 cents to $5 to just 4 to 6 cents.

"We wind up eating tens of millions of dollars because we don't find out until after we've treated patients that insurance coverage eligibility is denied," Glaser said. Quicker responses over a network such as ANX could minimize or eliminate that problem, he said. □

Web expands Kmart reach

CONTINUED FROM PAGE 1

Detroit-area stores touch-screen PCs that now will let consumers buy everything from money orders to household appliances and in the future will offer concert tickets. The stations will be located near a customer-service checkout area, where customers go to complete their purchases and make delivery arrangements.

Retail industry analysts said Kmart's move carries great potential — and some risks for the $32 billion retailer. Troy, Mich.-based Kmart posted a $249 million profit last year but reported losses in three of the previous four years, including red-ink baths of $220 million in 1996 and $571 million in 1995.

"This is a very exciting part of our strategy, and we're hoping that it results in incremental sales, said Mary Lorencz, a spokeswoman for Kmart.

Lorencz said the plan is to have Kmart Solutions in 130 stores by the end of the year. If those stores are a success, the company plans to take the project nationwide.

"We're adding products every day, so it's difficult to generate a revenue number, because what we have there today isn't all that we will have there two years from now," she said.

"You are going to see phone call centers and Web-based applications in retail. In the case of Kmart, this is an innovative and gutsy move on their part," said John Jordan, an expert in the area of electronic commerce at Ernst & Young LLP in Cambridge, Mass.

A World Wide Web-based approach will release Kmart from the usual physical constraints a retailer faces when trying to broaden its offerings, Jordan said. It could open up new turf from which to challenge competitor chains. The challenge, however, will be to convince customers that they can easily return merchandise purchased through the system — and that they can still get quality service.

At its touch-screen stations, Kmart also plans to offer services such as lawn treatments, floral arrangements and extended warranties on products. The list of offerings will expand over time to services such as concert and sports ticketing, car and truck rentals and customers' utility bill payments.

Kmart's mix may appear eclectic, but some of what it will offer has taken off in other shopping spots, such as bank branches located in grocery stores and entertainment tickets sold at retail department stores.

"We based our offerings on a lot of feedback from sales associates, and we held hours and hours of focus groups with both core and noncore customers," said Dave Schuvie, vice president of operations and electronic retailing at Kmart.

Known for its soup-to-nuts offerings, the discount retailer has been fighting an uphill battle against giants such as Wal-Mart Stores, Inc. in Bentonville, Ark., and Circuit City Stores, Inc. in Richmond, Va., according to Dave Toung, an analyst at Argus Research, Inc. in New York.

HOLDING ON TO CUSTOMERS

"When [retailers] bring a lot of services under one roof, they keep the customers there longer, and with things like buying concert and sports tickets, people see they can do all of these things in one place, and it increases their shopping frequency," Toung said.

Kmart is using Dell Computer Corp. PCs and IBM's electronic-commerce software for its intranet application.

Schuvie said the touch-screen system is user-friendly enough that most shoppers will be able to use it without assistance. The PCs' location, though, next to a customer service desk, will provide staff to help shoppers who need a walk-through.

Wall Street's overall outlook on Kmart appears good right now. The company has a good merchandising team in place, according to Toung, who gave the company's stock a Buy rating last week. It reported sales last month of $3.16 billion.

Lorencz said the project didn't require significant numbers of new hires because Kmart has been training existing customer service and sales associates on the new systems. A dedicated electronic-commerce team is going to deal with updating the products and services available on the system as it moves forward expands. □

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Dispatches & images from the fringes of the electronic frontier

VIRTUAL BIOLOGY CLASS

Remember dissection in biology class — the smell and the mess? Researchers at Stanford University have developed a virtual frog for virtual dissection. The three-dimensional computer model lets students view the exterior from any angle, make the skin transparent and zoom inside to view muscles or peel back muscles to expose organs and skeleton. (See *http://summit.stanford.edu/creatures.*) The software is licensed to Osiris Studios in Santa Cruz, Calif., for school distribution.

Naws to ponder

Robots are improving as soccer players. At last year's World RoboCup Soccer Championship, only a handful of goals were scored during the entire tournament — many of them against the scorer's own team. This year in Paris, the intelligent mobile robots were better at controlling the ball and lining up to attack it with custom-designed kickers, reports ActivMedia Robotics in Peterboro, N.H. The winning team used ActivMedia's Pioneer robots and artificial intelligence programming from the Freiburg Institute of Technology in Germany.

A(n) unscientific survey of 16,000 members of the "Web Generation" (ages 15 to 34) reveals that Luke Skywalker is their top hero and Saddam Hussein their top villain, reports The Den, a Web entertainment network (*www.theden.com*). The online survey also listed the Top 5 "defining moments" of the generation.

1. The *Challenger* shuttle explosion
2. Fall of the Berlin Wall
3. Rise of the Internet
4. The Gulf War
5. Oklahoma City bombing

E-Mail Rich Tennant at theywave@tiac.net

Shareware's greatest hits

FreeSpace, a utility from Mijenix Corp. in Boulder, Colo., won the Most Innovative New Product Award at the 1998 Shareware Industry Awards program last week (*www.sic.org*). FreeSpace optimizes hard-drive space by selectively compressing files (*www.mijenix.com*).

THE FIFTH WAVE

"Well, there goes the simple charm of sitting around the stove surfing the Web on our laptops."

Inside Lines

States drop part of Microsoft suit

The 20 states suing Microsoft for antitrust violations dropped two of their claims late Friday, citing time and witness limitations set by the court. Allegations that Microsoft illegally tied Outlook Express to the Windows operating system and illegally forced other vendors to carry the Office suite were dropped. The rest of the suit, which now more closely matches the federal antitrust complaint against Microsoft, stands.

Gates vs. the lions

Microsoft said even if asked, CEO Bill Gates wouldn't testify at a Senate hearing on Internet software competition slated for Thursday. "It may not be appropriate for us to participate," a company spokesman said, given that Microsoft faces the antitrust trial in Washington Sept. 8. Some observers said Gates wouldn't want to ruffle Washington feathers before the trial. But one political spin doctor said Gates should go for it. "Going into the lion's den is always the best political strategy," said Mary Matalin, former deputy campaign manager for the 1992 Bush/Quayle ticket. The attacking senators stand just as much chance of damaging their position as Gates does, she said, because "egos abound."

Users seeking Oracle R-E-S-P-E-C-T

After being ignored by Oracle for the past six months or so, the database-oriented New York Oracle Users Group found another willing sponsor for its recent meeting/boat cruise: Microsoft, Oracle's main nemesis. The 500-member user group specified that it wanted to hear about Windows NT and Microsoft's tools, not its SQL Server database. This month it followed up with a long letter to Oracle asking for "a little respect for our efforts." The letter pointedly noted that Computer Associates expressed interest in sponsoring next year's cruise. Oracle said company officials "take our users groups very seriously and are working to resolve these issues."

Clinton does his Andy Rooney impression

The president's year 2000 conversion speech last week touched on the possible consequences of the millennium bug for Main Street U.S.A. There "could simply be a rash of annoyances, like being unable to use a credit card at the supermarket or the video store losing track of the tape you have already returned. Has that ever happened to you? It really is aggravating," Clinton said. "I just wanted to remind you that I used to have a life, and I know about things like that."

The official millennium bird feeder?

Hoping to make a buck, partially for a good cause, a company in Birmingham, Mich., recently unveiled "The Official Symbol of the New Millennium." Millennium 321 plans to market the symbol to clothing and souvenir companies to slap on their products. Five percent of the profits will go to the Starbright Foundation, a children's charity. The symbol, which to us looks like a bug zapper or space-age bird feeder, is at the self-proclaimed Official Web Site of the Millennium (*www.m321.com*).

Buddy, can you spare a micropayment?

IBM's research lab in Haifa, Israel, is putting the finishing details on a World Wide Web micropayment system set for an August or September rollout. Called IBM Micro Payments, it would set up accounts for consumers to buy information or products in small increments that may not be feasible for a charge-card purchase. IBM plans to launch the system first in Europe, Africa and the Middle East.

In a recent interview about a service pack for Windows NT 4.0, a Microsoft product manager was asked what kind of bug fixes users can expect. "Well, there's so many of them," he said. Sigh. So many bugs, so little time. If you know of any big bad bugs that need to be whacked, send E-mail to news editor Patricia Keefe at patricia_keefe@cw.com or call her at (508) 820-8183.

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Dispatches & Images from the Fringes of the Electronic Frontier

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Inside Lines

States drop part of Microsoft suit

The 20 states suing Microsoft for antitrust violations dropped two of their claims late Friday, citing time and witness limitations set by the court. Allegations that Microsoft illegally tied Outlook Express to the Windows operating system and illegally forced other vendors to carry the Office suite were dropped. The rest of the suit, which now more closely matches the federal antitrust complaint against Microsoft, stands.

Gates vs. the liars

Microsoft said even if asked, CEO Bill Gates wouldn't testify at a Senate hearing on Internet software competition slated for Thursday. "It may not be appropriate for us to participate," a company spokesman said, given that Microsoft faces the antitrust trial in Washington Sept. 8. Some observers said Gates wouldn't want to ruffle Washington feathers before the trial. But one political spin doctor said Gates should go for it. "Going into the lion's den is always the best political strategy," said Mary Matalin, former deputy campaign manager for the 1992 Bush/Quayle ticket. The stinging numbers stand just as much chance of damaging their position as Gates does, she said, because "egos abound."

Users stoking Oracle R-E-S-P-E-C-T

After being ignored by Oracle for the past six months or so, the database-oriented New York Oracle Users Group found another willing sponsor for its recent meeting/boat cruise: Microsoft, Oracle's main nemesis. The 300-member user group specified that it wanted to hear about Windows NT and Microsoft's tools, not its SQL Server database. This month it followed up with a long letter to Oracle asking for "a little respect for our efforts." The letter pointedly noted that Computer Associates expressed interest in sponsoring next year's cruise. Oracle said company officials "take our users groups very seriously and are working to resolve these issues."

Clinton does his Andy Rooney impression

The president's year 2000 conversion speech last week touched on the possible consequences of the millennium bug for Main Street U.S.A. There "could simply be a rash of annoyances, like being unable to use a credit card at the supermarket or the video store losing track of the tape you have already returned. Has that ever happened to you? It really is aggravating," Clinton said. "I just wanted to remind you that I used to have a life, and I know about things like that."

The official millennium bird feeder?

Hoping to make a buck, partially for a good cause, a company in Birmingham, Mich., recently unveiled "The Official Symbol of the New Millennium." Millennium 500 plans to market the symbol to clothing and souvenir companies to slap on their products. Five percent of the profits will go to the Starbright Foundation, a children's charity. The symbol, which to us looks like a bug zapper or space-age bird feeder, is at the self-proclaimed Official Web Site of the Millennium (*www.m500.com*).

Daddy, can you spare a micropayment?

IBM's research lab in Haifa, Israel, is posting the finishing details on a World Wide Web micropayment system set for an August or September rollout. Called IBM Micro Payments, it would set up accounts for consumers to buy information or products in small increments that may not be feasible for a charge-card purchase. IBM plans to launch the system first in Europe, Africa and the Middle East.

In a recent interview about a service pack for Windows NT 4.0, a Microsoft product manager was asked what kind of bug fixes users can expect. "Well, there's so many of them," he said. Sigh. So many bugs, so little time. If you know of any big bad bugs that need to be whacked, send E-mail to news editor Patricia Keefe at patricia_keefe@cw.com or call her at (508) 820-8183.

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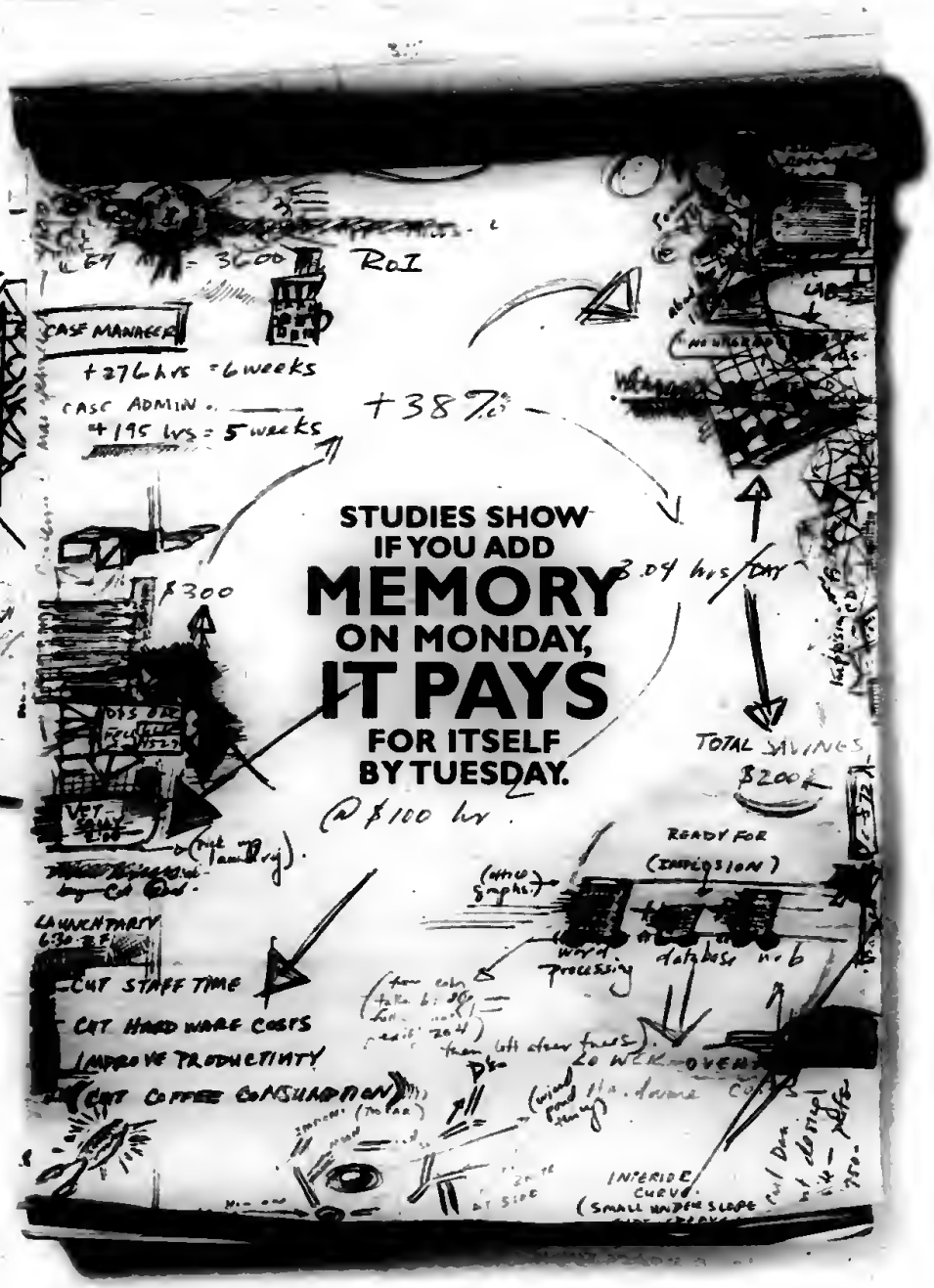

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